3-173

P1230

AF/2800

MAR 13 2003 OIPE JC67 PATENT & TRADEMARK OFFICE

"Express Mail" label number: EV 214158477 US
Date of Deposit: March 13, 2003
I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. §1.10 on the date above indicated and is addressed to:
Box AF, Commissioner for Patents, Washington, DC 20231.
Typed or Printed Name of Person Mailing Paper or Fee: Linda Cantrell
Signature: Linda Cantrell

PATENT
Docket No. P1230

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S):	NOEL LEE		
SERIAL NO.:	09/735,697	EXAMINER:	SHARON POLK
FILED:	DECEMBER 12, 2000	ART UNIT:	2836
FOR:	APPARATUS AND METHOD FOR POWERING MULTIPLE PERIPHERAL DEVICES FROM A COLOR-CODED CENTRAL POWER SOURCE		

RECEIVED
MAR 19 2003
TECHNOLOGY CENTER 2800

BOX AF
COMMISSIONER FOR PATENTS
WASHINGTON, DC 20231

TRANSMITTAL LETTER

Dear Sir:

In connection with the above-referenced patent application, transmitted herewith are the following:

1. Amendment After Final Rejection Under 37 C.F.R. §1.116 (34 pages);
2. Appendix A (3 pages);
3. Appendix B (5 pages);
4. Exhibit A (19 pages);
5. Exhibit B (19 pages); and
6. Post card in acknowledgment of receipt of all transmitted materials.

Duplicate

Please date stamp and return the enclosed post card to the undersigned in acknowledgment of receipt of all transmitted materials.

Respectfully submitted,

May Lin DeHaan

May Lin DeHaan
Reg. No. 42,472

MLD: pa
Date: March 13, 2003
LARIVIERE, GRUBMAN & PAYNE, LLP
P.O. Box 3140
Monterey, CA 93942-3140
(831) 649-8800

"Express Mail" mailing label number: EV 264213661 US
Date of Deposit: May 13, 2003
I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. §1.10 on the date indicated above and is addressed to:
Mail Stop Appeal Brief-Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450
Typed or Printed Name of Person Mailing Paper or Fee: Patricia Aguillon
Signature: ______________________

PATENT
Docket No. P1230

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

APPELLANT:	NOEL LEE		
SERIAL NO.:	09/735,697	EXAMINER:	SHARON POLK
FILED:	DECEMBER 12, 2000	ART UNIT:	2836
FOR:	APPARATUS AND METHOD FOR POWERING MULTIPLE PERIPHERAL DEVICES FROM A COLOR-CODED CENTRAL POWER SOURCE		

MAIL STOP APPEAL BRIEF-PATENTS
COMMISSIONER FOR PATENTS
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450

REVISED APPEAL BRIEF
UNDER 35 U.S.C. § 143(a), 37 C.F.R. § 1.192, and 37 C.F.R. § 1.193(b)(2)

To the Commissioner:

This letter is a Revised Appeal Brief in support of a herewith filed Request for Reinstatement of the December 11, 2001, Notice of Appeal and is being filed within the non-fee period set for Response to the final Office Action, dated January 16, 2003, under 35 U.S.C. § 143(a) and 37 C.F.R. § 1.192. This Revised Appeal Brief is being filed in triplicate; and the respective fees, accompanying both the December 11, 2001, Notice of Appeal and the February 8, 2002, Appeal Brief, shall be heretofore re-applied under 37 C.F.R. § 1.193(b)(2).

TABLE OF CONTENTS

SECTION **PAGE NO.**

REAL PARTY IN INTEREST
(37 C.F.R. § 1.192(c)(1))

The real party in interest is the Assignee of the patent application, Monster Cable Products, Inc., doing business at 455 Valley Drive, Brisbane, California 94005-1209.

RELATED APPEALS AND INTERFERENCES
(37 C.F.R. § 1.192(c)(2))

On information and belief, no related appeals or interferences are pending.

STATUS OF CLAIMS
(37 C.F.R. § 1.192(c)(3))

This continuation application (US 09/735,697), claiming priority to US 60/070,317 via US 09/735,697, was filed with Claims 8-9, 11-12, 14-15, 17-18, 20, 23, and 26. A Preliminary Amendment, canceling Claims 8-9, 11-12, 14-15, 17-18, 20, 23, and 26 and adding Claims 29-40, was also therewith filed. Subsequently, the Examiner issued a final Office Action on August 28, 2001, maintaining her objection of Claims 37, 39, and 40, under 37 C.F.R. § 1.75(c), and her rejection of Claims 29-40, under 35 U.S.C. § 112, 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a). A Response to the August 28, 2001, final Office Action was filed on October 5, 2001.

The Examiner then reopened prosecution and issued a second final Office Action on November 5, 2001, wherein the Examiner has withdrawn her grounds for objection of the claims on the basis of 37 C.F.R. § 1.75(c), and has withdrawn her grounds for rejection of the claims on the bases of 35 U.S.C. § 112 and 35 U.S.C. § 102(b), while maintaining her rejection of Claims 29-40 under 35 U.S.C. § 103(a). A Notice of Appeal was filed December 11, 2001, for Claims 29-40; and an Appeal Brief was filed February 8, 2002.

Subsequently, the Examiner reopened prosecution for a second time via a Telephonic Action on April 8, 2002. The Examiner issued a non-final Office Action on May 6, 2002, wherein Claims 29-40 were rejected. An In-Person Interview was conducted on May 22, 2002, by the Appellant's Attorney, Mr. F. David LaRiviere with Examiner Sharon Polk and her Supervisory Patent Examiner Brian Sircus, wherein Supervisory Patent Examiner Brian Sircus suggested that the Appellant amend the claims to positively recite "the relationship between color

and alpha [i.e., the peripheral device] can be changed" as shown in the Interview Summary of the same date. A Response was filed September 5, 2002, to the May 6, 2002, Office Action, wherein Claims 29-40 were canceled, without prejudice, and Claims 41-48 were added which positively recited "the relationship between color and alpha [i.e., the peripheral device] can be changed" as suggested by the Supervisory Patent Examiner.

The case was then referred the Sensitive Applications Division of the USPTO according the Supervisory Patent Examiner in a telephone conference of December 29, 2002. The case was referred back to the Examiner which has now issued a final Office Action on January 16, 2003.

An Amendment After Final Rejection was submitted on March 13, 2003. The Appellant believes that Claims 41-48 as amended on March 13, 2003, as well as Claims 41-48, as added on September 5, 2002, fully encompass all of the inventive system features as set forth in the originally-filed Specification and are allowable. A Telephonic Interview was conducted on April 9, 2003, wherein Examiner Polk indicated that the March 13, 2003, Response, as well as the PTO file, are not locatable, and wherein Examiner Polk was advised that the Appellant has received the return post card from the PTO for the March 13, 2003, Response.

STATUS OF AMENDMENTS
(37 C.F.R. § 1.192(c)(4))

The Appellant has not received an Advisory Action nor a Notice of Allowance to date. As such, the Appellant has no knowledge regarding whether the March 13, 2003, Amendment has been entered. Therefore, the September 5, 2002, Amendment as well as the March 13, 2003, Amendment are hereby presented, in the alternative, as being the claims on Appeal.

SUMMARY OF INVENTION
(37 C.F.R. § 1.192(c)(5))

With the many possible combinations/permutations of electronic components (e.g., TV, VCR, DVD, etc.) available today, the consumer usually finds himself **"tangled in a web of confusion"** with respect to handling/managing all the cords emanating from the prior art plain plug strip. Such is the problem with these **prior art "plain" plug strips,** which provide no identifying information at all, where the average consumer needed *superior memory* to recall the electrical connections which were made long ago or *superior vision* to see those connections

from any notable distance made between the plug strip and the equipment being plugged. Further, prior art means for tagging of electronic equipment were easily worn or dislodged. See Appendix B, for an illustration of the prior art plug strip problems. Solving these prior art problems, the claimed invention is basically **a solid color-coded plug strip system** for distributing power to **many pieces of electronic equipment**, such as one would require in a home computer system (e.g., computer, printer, scanner, modem, etc.), a home theater system (e.g., TV, VCR, DVD, etc.), a home sound system CD, receiver, LP turntable, cassette player, P/A systems, electronic musical instruments, etc.), and a home security system (e.g., alarm system, surveillance equipment such as closed circuit television, CCTV, infrared sensor such as IR camera, motion detector, electronic gate motor, intercom, etc.). The presently claimed color coding, as applied to this plug strip, takes into consideration the **human factors engineering principles** and practical problems involved in setting-up and maintaining any of the foregoing electronic home systems for **the typical consumer who may not have a background in electrical engineering**. The solid colors on the plug strip system allow the consumer **to easily see the connection**, even from a distance without having to remember, squint, or predict that connection. See Appendix B, for an illustration of the present solid color-coded plug strip system solution to the prior art problems.

The present solid color-coded plug strip system comprises a plurality of solid color-coded outlet housing portions (i.e., **solid color disposed on and surrounding each outlet**). The outlet areas of a prior art plain plug strip may be **retrofitted** by **indicia elements** of the present invention **kit**. In addition, the solid color-coded outlet housing portions of the present invention plug strip system may also have their colors changed to suit the consumer by likewise **retrofitting** the strip system with the **indicia elements** from the **kit**. The present **solid color-coding on the plug strip system** is **substantially more prominent to the human eye than the cited art colored stripes**. A goal of the present invention is to *not* hardwire. Thus, the present invention provides nearly **unlimited flexibility** by allowing the consumer to customize his electronic "hook-ups" without "hang-ups." Since the color-coding is applied to a plug strip system rather than to a specialized electronic apparatus (e.g., a resistor), the user may connect *any* peripheral device to *any* outlet with *any* interconnecting cord that he/she so chooses. The present invention allows the consumer to define the color-coding via the retrofitting option, because the interconnects and the indicia elements (stickers) are not "hardwired."

An **optional easy-to-use kit** may be provided with this solid color-coded plug strip system, **the kit comprising a plurality of solid color-coded indicia element sets for retrofitting said housing member of said power strip apparatus to a number of different ones of said plurality of peripheral devices by *correspondingly* labeling said solid-colored outlet housing portions, said plurality of electrical power cords, and said plurality of peripheral devices**, thereby facilitating **retrofitting of a prior art plain plug strip or retrofitting the colors of the claimed solid color-coded plug strip system** to suit the consumer's changing needs. The indicia element sets may also include solid color-coded stickers for adhering to plain prior art cords and to the electronic component (i.e., the peripheral device). The solid color-coded indicia elements may have information (e.g., symbols, numbers, words, or acronyms) printed thereon about many types of consumer electronic equipment, enabling the consumer to easily further identify his electronic connection and the particular electronic component.

The present invention, as defined in the claims, is illustrated in Figures 2 and 3 of the Drawings and is described in the Detailed Description of the Invention beginning on page 6, line 27 of the present continuation application. In one embodiment of the invention, the AC power distribution apparatus comprises: a solid color-coded power strip apparatus 20N; a plurality of color-coded power cords 35, 45, 55, (2) 45x, and 55x; and a plurality of color-coded indicia elements I_{cx}. The power strip apparatus also comprises a housing with a plurality of AC outlet portions C1, C2, C3, C4, C5, ..., CX corresponding to outlet receptacles 23(a, b, c, d, e, ..., n) for providing AC power to the same plurality of peripheral electrical devices. Each AC outlet housing portion being colored with a first color that is different from another AC outlet housing portion. The plurality of power cords comprise a power cord colored to match said first color. The remaining power cords of the plurality of power cords, comprise power cords colored to match each of the other colors on the power strip 20N. The indicia elements are, by example, an adhesive-backing type label having a color that matches the color of the power cord and the corresponding color of the AC outlet housing portion. The indicia elements I_{cx} also comprise identifying information (e.g., words, acronyms, numerals, and symbols) about the peripheral device to be powered.

In the preferred embodiment of the present invention, the kit comprises a plurality of indicia element sets for correspondingly labeling a respective outlet housing portion CX, power

cords or their terminals, and the peripheral device to which AC power is desired to be distributed as well as stickers for retrofitting the portions CX. The kit is also then useful in retrofitting an after-market AC power strip product, as alluded supra.

ISSUES
(37 C.F.R. § 1.192(c)(6))

I. Whether Claims 41-48 contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor(s), at the time the application was filed, had possession of the claimed invention, under 35 U.S.C. § 112, first paragraph.

II. Whether Claims 41-48 are indefinite for failing to particularly point-out and distinctly claim the subject matter which the Appellant regards as the invention, under 35 U.S.C. § 112, second paragraph.

III. Whether Claims 42-48 are substantial duplicates of Claim 41, under 37 C.F.R. § 1.75.

IV. Whether Claims 41-48 are unpatentable over Lee (US 5,589,718) under 35 U.S.C. § 103(a).

GROUPING OF CLAIMS
(37 C.F.R. § 1.192(c)(7))

The claims do not stand nor fall together.

ARGUMENT
(37 C.F.R. § 1.192(c)(8))

INTRODUCTORY REMARKS

On Reinstatement of the Appeal, the Appellant wishes to reiterate thanks to the Examiner for withdrawing the previous grounds of rejection and objection and for distilling the issues in the January 16, 2003, final Office Action. Pending Claims 41-48, as added in the September 5, 2002, Response to Office Action, and as amended in the March 13, 2003, Response to Final Office Action, better encompass the full scope and breadth of the present invention, as discussed, supra, notwithstanding the Appellant's belief that the claims would have been allowable as originally filed. Thus, favorable consideration of the present continuation application is respectfully requested in light of the Request for Reinstatement of the Appeal, herewith filed, these remarks, the following argument, the appendices, and the herewith submitted exhibits.

I. Whether Claims 41-48 contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor(s), at the time the application was filed, had possession of the claimed invention, under 35 U.S.C. § 112, first paragraph

A. Specific nature of the Examiner's rejection

The Examiner has rejected Claims 41-48, under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor(s), at the time the application was filed, had possession of the claimed invention, stating:

> [The Appellant] contend[s] in [the] remarks portion of the paper #13, page 5, that the claimed subject matter of new claims 41-48 is fully supported by the originally filed [December 12, 2000,] specification (p. 3, ll. 18-26; p. 4, ll. 18-21; p. 5, l. 21 - p. 7, l. 7) ....
>
> The examiner disagrees in part. The examiner cannot find support in either the original specification or the present continuation application regarding the housing member, the electrical outlets, and the plurality of peripherals **each**[,] having a plurality of color-assignable areas. Further, the assertion that "reassigning one or more [of] the plurality of color-assignable areas"

> was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. Similarly, the *assigning a new color* to the plurality of peripheral devices is not reasonably supported in the specification.

As such, the Examiner concedes that at least some support exists in the originally filed Specification for the foregoing limitations at issue. Claims 41-48, as amended March 13, 2003, now provide clearer antecedent basis, as discussed, supra, thereby rendering moot the Examiner's ground for rejection on this basis.

B. Analysis in light of the evidence

Notwithstanding Claims 41-48 being amended on March 13, 2003, to more fully encompass the present invention, the Appellant has respectfully traversed and hereby appeals the Examiner's grounds for rejection on this basis. Claims 41-48, as amended September 5, 2002, are believed to respectively provide sufficient antecedent basis and recite language consistent with the originally-filed Specification:

41. **(New)** A solid color-coded AC electrical power distribution system, said system comprising:
a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,
said housing member, said plurality of electrical outlets, and said plurality of peripheral devices, each having a plurality of color-assignable areas,
each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and
a plurality of attachable color-coded labels for selectively reassigning one or more of said plurality of color-assignable areas to a corresponding number of different ones of said plurality of peripheral devices.

42. **(New)** A system, as recited in Claim 41, wherein said color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

43. **(New)** A solid color-coded AC electrical power distribution system, said system comprising:
a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,
said housing member, said plurality of electrical outlets, and said plurality of peripheral devices, each having a plurality of color-assignable areas,
each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices;

and

a plurality of attachable color-coded labels for selectively reassigning one or more of said plurality of color-assignable areas on said housing member to a corresponding number of different ones of said plurality of peripheral devices.

44. **(New)** A system, as recited in Claim 43, wherein said color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

45. **(New)** A solid color-coded AC electrical power distribution system, said system comprising:

a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,

said housing member, said plurality of electrical outlets, and said plurality of peripheral devices, each having a plurality of color-assignable areas,

each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and

a plurality of attachable color-coded labels for selectively reassigning one or more of said color-assignable areas on one or more of said plurality of electrical outlets to a corresponding number of different ones of said plurality of peripheral devices.

46. **(New)** A system, as recited in Claim 45, wherein said color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

47. **(New)** A solid color-coded AC electrical power distribution system, said system comprising:

a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,

said housing member, said plurality of electrical outlets, and said plurality of peripheral devices, each having color-assignable areas,

each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and

a plurality of attachable color-coded labels for selectively reassigning one or more of said color-assignable areas on one or more of said plurality of peripheral devices to a corresponding number of different ones of said plurality of electrical outlets.

48. **(New)** A system, as recited in Claim 47, wherein said color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

Alternatively, Claims 41-48, as amended on March 13, 2003, are also believed to provide sufficient antecedent basis and recite language consistent with the originally-filed Specification:

41. **(Amended)** A solid color-coded AC electrical power distribution system, said system comprising:

a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,
said housing member having a plurality of color-assignable areas,
each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and
a plurality of attachable color-coded labels for selectively and correspondingly reassigning one or more of said plurality of color-assignable areas to a corresponding number of different ones of said plurality of peripheral devices.

42. **(Amended)** A system, as recited in Claim 41, wherein said plurality of attachable color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

43. **(Amended)** A solid color-coded AC electrical power distribution system, said system comprising:
a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,
said housing member having a plurality of color-assignable areas,
each outlet of said plurality of electrical outlets having a corresponding color-assignable area, and
each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and
a plurality of attachable color-coded labels for selectively and correspondingly reassigning one or more of said plurality of color-assignable areas on said housing member to a corresponding number of different ones of said plurality of peripheral devices.

44. **(Amended)** A system, as recited in Claim 43, wherein said plurality of attachable color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

45. **(Amended)** A solid color-coded AC electrical power distribution system, said system comprising:
a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,
said housing member having a plurality of color-assignable areas,
each outlet of said plurality of electrical outlets having a corresponding color-assignable area,
each device of said plurality of peripheral devices having a corresponding color-assignable area, and
each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and
a plurality of attachable color-coded labels for selectively and correspondingly reassigning one or more of said color-assignable areas on one or more of said plurality of electrical outlets to a corresponding number of different ones of said plurality of peripheral devices.

46. **(Amended)** A system, as recited in Claim 45, wherein said plurality of attachable color-coded labels further include indicia for identifying which of said plurality of peripheral

devices has been assigned a new color.

47. **(Amended)** A solid color-coded AC electrical power distribution system, said system comprising:
a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,
said housing member having color-assignable areas,
each outlet of said plurality of electrical outlets having a corresponding color-assignable area,
each device of said plurality of peripheral devices having a corresponding color-assignable area, and
each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and
a plurality of attachable color-coded labels for selectively and correspondingly reassigning one or more of said color-assignable areas on one or more of said plurality of peripheral devices to a corresponding number of different ones of said plurality of electrical outlets.

48. **(Amended)** A system, as recited in Claim 47, wherein said plurality of attachable color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

The Appellant respectfully submits that either the September 5, 2002, or the March 13, 2003, pending Claims 41-48 are fully supported by the originally-filed Specification (p. 3, ll. 10-26):

> The foregoing objects are accomplished by providing in one embodiment of the invention, an AC power distribution apparatus comprising a power strip apparatus, a plurality of power cords and a plurality of indicia elements. The power strip apparatus comprises a housing with a plurality of AC outlet portions for providing AC power to the same plurality of peripheral electrical devices. ***Each AC outlet housing portion being colored with a first color that is different from another AC outlet housing portion.*** **The plurality of power cords comprise a** ***power cord colored to match said first color.*** **The** ***remaining power cords*** **of the plurality of power cords,** ***comprise power cords colored to match each of the other colors on the power strip.*** **The indicia elements are, by example, an** ***adhesive-backing type label having a color that matches the color of the power cord and the corresponding color of the AC outlet housing portion. The indicia elements also comprise identifying information about the peripheral device to be powered.***
>
> **Another embodiment of the present invention comprises a** ***kit of a plurality of indicia element sets for labeling a respective power strip AC outlet portion, power cord terminals and the peripheral device*** **to which AC power is desired to be distributed. The** ***kit is useful in retro-fitting*** **after-market ac power strip product.** [Emphasis added.]

In addition, the originally-filed Specification (p. 6, ll. 15-24) also teaches:

> Fig. 3 shows **power strip 20N** in accordance with the present invention having **color coded AC outlet portions C1, C2, C3, C4, C5 and Cx permanently provided at time of manufacturing**

> **with the colored portions, or after market, by applying an appropriate *colored labels or indicia* Ic1, Ic2, Ic3, Ic4, Ic5 and Icx to the outlet portions of an AC power strip** not provided with permanent color coded portions, in accordance with the present invention. The colored portions C1, C2, C3, C4, C5 and Cx and the colored labels or indicia Ic1, Ic2, Ic3, Ic4, Ic5 and Icx, attachable to the outlet portions of the AC power strip 20N, **may include the identifying information of the particular peripheral device to be powered.** By example, **indicia with the appropriate peripheral device 30, 40, 50, 60, or 70 identity may be imprinted on the indicia [element].** [Emphasis added.]

C. Conclusion with respect to Issue I

Thus, the Appellant respectfully submits that either the September 5, 2002, or the March 13, 2003, pending Claims 41-48 contain subject matter which is described in the Specification in such a way as to reasonably convey to one skilled in the art that the inventor, at the time the application was filed, had possession of the claimed invention, under 35 U.S.C. § 112, first paragraph. Therefore, the Appellant respectfully requests that the Examiner's grounds for rejection on this basis be reversed.

II. Whether Claims 41-48 are indefinite for failing to particularly point-out and distinctly claim the subject matter which the Appellant regards as the invention, under 35 U.S.C. §112, second paragraph

A. Specific nature of the Examiner's rejection

The Examiner has rejected Claims 41-48, under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point-out and distinctly claim the subject matter which the Appellant regards as the invention, stating:

> ... claims 41, 43, 45, and 47, it is unclear how the housing member, which has a plurality of outlets, the outlets themselves, and the plurality of peripherals **EACH** have a plurality of color-assignable areas.
>
> ... claims 41, 43, 45, and 47, it is unclear how a solid color-coded AC electrical power distribution system can later be claimed to have "color-assignable areas" when it is not previously recited that it is color-coded. ....
>
> ... claim 41, ... recites a plurality of attachable color-coded labels for selectively reassigning one or more of said plurality of color-assignable areas to a corresponding number of different ones of said plurality of peripheral devices[s]. ... unclear how one of the color-assignable areas can be selectively reassigned to a corresponding number of different ones of said plurality of peripheral devices without the other two areas also being reassigned.
>
> ... claims 42, 44, 46, and 48, it is unclear how the label discern which of the plurality of devices has been assigned a new color. If the device is originally manufactured with a red colored indicia for DVD/LD then do the plurality of color-coded labels (Bright orange, Light Mocha, Chartreuse, Bright Blue, Kelley Green, or Bright Purple) have DVD/LD indicia such that the user

> can truly decide which of said plurality of peripheral devices has been assigned a new color, or are they limited to a few selections (i.e., 2 other colored labels would have DVD/LD printed on them)?

Reiterating, the Examiner concedes that at least some support exists in the originally filed Specification for the foregoing limitations at issue.

B. Analysis in light of the evidence

Notwithstanding Claims 41-48 being amended on September 5, 2002, and on March 13, 2003, as discussed, supra, to more fully encompass the present invention, the Appellant has respectfully traversed and hereby appeals the Examiner's grounds for rejection on this basis. In response to the Examiner's statement that the claims are unclear with respect to how one of the color-assignable areas can be selectively reassigned to a corresponding number of different, independent Claims 41, 43, 45, and 47 have been amended in the March 13, 2003, Response to provide sufficient antecedent basis to show how the color-assignable areas are allocated and reassignable. In retrofitting the plug strip apparatus, the user would clearly need to be consistent in his/her selective attachment of the labels by correspondingly labeling the elements.

C. Conclusion with respect to Issue II

Thus, the Appellant respectfully submits that either the September 5, 2002, or the March 13, 2003, pending Claims 41-48 are not indefinite for failing to particularly point-out and distinctly claim the subject matter which the Appellant regards as the invention, under 35 U.S.C. § 112, second paragraph. Therefore, the Appellant respectfully requests that the Examiner's grounds for rejection on this basis be reversed.

III. Whether Claims 42-48 are substantial duplicates of Claim 41, under 37 C.F.R. § 1.75

A. Specific nature of the Examiner's rejection

The Examiner has rejected Claims 42-48, under 37 C.F.R. § 1.75, as being substantial

duplicates of Claim 41, stating:

> When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP §706.03(k).

B. Analysis in light of the evidence

Notwithstanding Claims 41-48 being amended on September 5, 2002, and on March 13, 2003, as discussed, supra, to more fully encompass the present invention, the Appellant has respectfully traversed and hereby appeals the Examiner's grounds for rejection on this basis. The Examiner concedes that "... it is proper **after *allowing* one claim** to object to the other as being a substantial duplicate of the **allowed claim**" [emphasis added]. As such, the requirements for this basis of objection have not been met, because **the Examiner has *not yet allowed* any of the claims**.

C. Conclusion with respect to Issue III

Thus, the Appellant respectfully submits that the ground for objection of Claims 42-48 on this basis is improper, because no claim could be a substantial duplicate of *any* allowed claim since *no claim has yet been allowed nor even yet found to be allowable* by the Examiner. Therefore, the Appellant respectfully requests that the Examiner's grounds for objection on this basis be reversed.

IV. Whether Claims 41-48 are unpatentable over Lee (US 5,589,718) under 35 U.S.C. § 103(a)

A. Specific nature of the Examiner's rejection

The Examiner has rejected Claims 41-48, under 35 U.S.C. § 103(a), as being unpatentable over Lee (US 5,589,718), stating:

> ... claims 41, 43, 45, and 47, Lee teaches a solid color-coded electrical power distribution system (col. 4, ll. 38-41), said system comprising:
>
> a housing member (12) having a plurality of electrical outlets (Fig.[] 16a-16h) for connectible electrical power to a plurality of electrical outlets, and said plurality of peripheral devices, each having a plurality of color-assignable areas, each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices (col. 3, ll. 43-50)[,]....

B. Analysis in light of the evidence

Notwithstanding Claims 41-48 being amended on September 5, 2002, and on March 13, 2003, as discussed, supra, to better encompass the present invention, the Appellant has respectfully traversed and hereby appeals the Examiner's grounds for rejection on this basis for the reasons set forth, infra.

1. Evidence of secondary considerations from the Declaration of the Appellant Noel Lee under 37 C.F.R. § 1.132

The Appellant respectfully asserts that the Declaration of the Appellant Noël Lee, under 37 C.F.R. § 1.132, provides sufficient evidence of the nexus between commercial success and the merits of the present invention. The **general rule for sufficiency of evidence** with respect to commercial success is stated in *Winner International Royalty Corp., Inc. v. Wang,* No. 96-2107, 48 USPQ2d 1139 (D.C.D.C. June 12, 1998), decided 10 years after and being consistent with *Demaco*: **"Plaintiff's evidence is sufficient to establish commercial success of invention ..., since evidence shows that plaintiff has sold more than 1.5 million devices, worth more than $60 million in sales, since this economic data supports plaintiff's position that its device is able to command significantly higher retail price ... to meet peculiar needs of certain consumers, ... is clearly consistent with the fact of commercial success."**

In the present case, the Appellant Noel Lee's Declaration (para. 7), under 37 C.F.R. § 1.132, states, **"A need for a solid color-coded central power source has been long felt in the electronic components industry.** Although stymied by the peripheral device connection confusion imparted by plain plug strips, the industry had made no progress toward my solution to the problem. No other manufacturer has been known to have made a solid color-coded central power supply having peripheral device identification prior to my invention. **Further, the**

present invention is currently experiencing record sales and has dominated the market sector in the area of plug strips both domestically and in Asia. In addition, two large retailers, Good Guys™ and Sound Advice™ have completely discontinued sales of the competitor's plug strip (Panamax™) and are exclusively carrying only the present invention central power supply (See Exhibit B [of record] containing Monster Cable Products, Inc.'s sales figures; also see herewith submitted Declaration under Rule 132 of Karen Johnson for Good Guys, Inc.)." Specifically, Exhibit B of his Declaration (of record) demonstrates **458,010 units sold worth $8,857,605.13 in retail sales** to the date of November 13, 2000. The Examiner even concedes (second final Office Action, para. 4) that the Declaration of Noel Lee "may be persuasive regarding commercial success and long felt need." Thus, under *Winner*, Noel Lee's Declaration provides sufficient evidence of the nexus between the merits of the invention and commercial success. Therefore, the Appellant respectfully requests reconsideration of the Appellant Noel Lee's Declaration.

2. Evidence of secondary considerations from the Declaration of the Retailer Karen Johnson under 37 C.F.R. § 1.132

The Appellant respectfully asserts that the Declaration of the Retailer Karen Johnson *likewise provides sufficient evidence of the nexus between commercial success and the merits of the present invention.* As discussed supra, the general rule of *Winner* is also applicable here: **"Plaintiff's evidence is sufficient to establish commercial success of invention ..., since evidence shows that plaintiff has sold more than 1.5 million devices, worth more than $60 million in sales, since this economic data supports plaintiff's position that its device is able to command significantly higher retail price ... to meet peculiar needs of certain consumers, ... is clearly consistent with the fact of commercial success."**

Here, Ms. Karen Johnson's Declaration (para. 3) states, **"A need for a solid color-coded central power source has been long felt in the electronic components retail industry.** Although retail consumers have been stymied by the peripheral device connection confusion imparted by plain plug strips, the manufacturing industry had made no progress toward the Monster solution as no other manufacturer was known to have made a solid color-coded central power supply having peripheral device identification prior to the present invention. Further, **the**

Monster product is currently experiencing record sales through our retail chain and has dominated the market sector in the area of plug strips. In addition, we have completely discontinued sales of the competitor's plug strip (Panamax^{TM}) and are exclusively carrying only the Monster color-coded central power supply **(See Exhibit A [of record] containing our retail sales figures and market share data)**." Specifically, Exhibit A of her Declaration (of record) shows **31,657 units sold worth $1,487,796.83 in retail sales** to the date of November 13, 2000. The Examiner even concedes (second final Office Action, para. 4) that the Declaration of the Retailer Karen Johnson "may be persuasive regarding commercial success and long felt need." Thus, under *Winner*, the Retailer Karen Johnson's Declaration also provides sufficient evidence of the nexus between the merits of the invention and commercial success. Therefore, the Appellant respectfully requests reconsideration of the Retailer Karen Johnson's Declaration.

3. Evidence of patentably distinct combination of features and their unexpectedly superior advantages in the present invention from the Declaration of the Expert Witness Environmental/Social Psychologist Dr. Albert Mehrabian under 37 C.F.R. § 1.132

With respect to the expert witness findings, what is ***at issue*** here ***for patentability*** is ***not whether there is "substantial advantage in using solid colors of high chroma," but whether "using solid colors of high chroma" in combination with a plug strip power distribution system and a retrofitting kit is obvious***. The expert witness has made findings as to the unexpected results of the present invention ***combination of elements***, rather than a statement regarding his knowledge of ***solid colors of high chroma*** in general. After examining, discussing, and distinguishing the cited art references (e.g., the '718 Patent) as well as a prototype of the present invention, Dr. Mehrabian concluded: "Thus, the present invention, ... comprising **a solid color-coded device** [plug strip apparatus] having **peripheral device identification**, constitutes **a solid color image** which requires far less mental processing than required by the cited art that appears to be patterned color image (striped and ringed) devices, and therefore, **provides superior visual perception, mental recognition, and mental retention of associations between each peripheral device and its corresponding housing portion**." Therefore, the Appellant respectfully requests reconsideration of Dr. Mehrabian's Declaration.

4. Present invention combination of features patentably distinct from the Appellant's own '718 Patent under 35 U.S.C. § 103

The law, under 35 U.S.C. § 103, is well settled that for a cited art reference to render obvious a claimed invention, the combination of claimed elements must be taught, motivated, or suggested by the cited art. The limitations that patentably distinguish Claim 41, as amended on September 5, 2002, from the '718 Patent are as follows:

1. "a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices[;]"
2. "said housing member, said plurality of electrical outlets, and said plurality of peripheral devices, each having a plurality of color-assignable areas[;]"
3. "each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices[;]"
4. "a plurality of attachable color-coded labels for selectively reassigning one or more of said plurality of color-assignable areas to a corresponding number of different ones of said plurality of peripheral devices[;]"

and, thus, by dependency, Claim 42 is also patentably distinct over the '718 Patent. The limitations that patentably distinguish Claim 42, as amended on September 5, 2002, from the '718 Patent are as follows:

1. "wherein said color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color."

The limitations that patentably distinguish Claim 43, as amended on September 5, 2002, from the '718 Patent are as follows:

1. "a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices[;]"
2. "said housing member, said plurality of electrical outlets, and said plurality of peripheral devices, each having a plurality of color-assignable areas[;]"
3. "each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices[;]"

4. "a plurality of attachable color-coded labels for selectively reassigning one or more of said plurality of color-assignable areas on said housing member to a corresponding number of different ones of said plurality of peripheral devices[;]"

and, thus, by dependency, Claim 44 is also patentably distinct over the '718 Patent. The limitations that patentably distinguish Claim 44, as amended on September 5, 2002, from the '718 Patent are as follows:

1. "wherein said color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color."

The limitations that patentably distinguish Claim 45, as amended on September 5, 2002, from the '718 Patent are as follows:

1. "a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices[;]"
2. "said housing member, said plurality of electrical outlets, and said plurality of peripheral devices, each having a plurality of color-assignable areas[;]"
3. "each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices[;]"
4. "a plurality of attachable color-coded labels for selectively reassigning one or more of said color-assignable areas on one or more of said plurality of electrical outlets to a corresponding number of different ones of said plurality of peripheral devices[;]"

and, thus, by dependency, Claim 46 is also patentably distinct over the '718 Patent. The limitations that patentably distinguish Claim 46, as amended on September 5, 2002, from the '718 Patent are as follows:

1. "wherein said color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color."

The limitations that patentably distinguish Claim 47, as amended on September 5, 2002, from the '718 Patent are as follows:

1. "a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices[;]"
2. "said housing member, said plurality of electrical outlets, and said plurality of peripheral devices, each having color-assignable areas[;]"

3. "each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices[;]"

4. "a plurality of attachable color-coded labels for selectively reassigning one or more of said color-assignable areas on one or more of said plurality of peripheral devices to a corresponding number of different ones of said plurality of electrical outlets[;]"

and, thus, by dependency, Claim 48 is also patentably distinct over the '718 Patent. The limitations that patentably distinguish Claim 48, as amended on September 5, 2002, from the '718 Patent are as follows:

1. "wherein said color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color."

Alternatively, the limitations that patentably distinguish Claim 41, as amended on March 13, 2003, from the '718 Patent are as follows:

1. "a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices[;]"

2. "said housing member having a plurality of color-assignable areas[;]"

3. "each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices[;]"

4. "a plurality of attachable color-coded labels for selectively and correspondingly reassigning one or more of said plurality of color-assignable areas to a corresponding number of different ones of said plurality of peripheral devices[;]"

and, thus, by dependency, Claim 42 is also patentably distinct over the '718 Patent. The limitations that patentably distinguish Claim 42, as amended on March 13, 2003, from the '718 Patent are as follows:

1. "wherein said plurality of attachable color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color."

The limitations that patentably distinguish Claim 43, as amended on March 13, 2003, from the '718 Patent are as follows:

1. "a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices[;]"

2. "said housing member having a plurality of color-assignable areas[;]"
3. "each outlet of said plurality of electrical outlets having a corresponding color-assignable area[;]"
4. "each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices[;]"
5. "a plurality of attachable color-coded labels for selectively and correspondingly reassigning one or more of said plurality of color-assignable areas on said housing member to a corresponding number of different ones of said plurality of peripheral devices[;]"

and, thus, by dependency, Claim 44 is also patentably distinct over the '718 Patent. The limitations that patentably distinguish Claim 44, as amended on March 13, 2003, from the '718 Patent are as follows:

1. "wherein said plurality of attachable color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color."

The limitations that patentably distinguish Claim 45, as amended on March 13, 2003, from the '718 Patent are as follows:

1. "a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices[;]"
2. "said housing member having a plurality of color-assignable areas[;]"
3. "each outlet of said plurality of electrical outlets having a corresponding color-assignable area[;]"
4. "each device of said plurality of peripheral devices having a corresponding color-assignable area[;]"
5. "each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices[;]"
6. "a plurality of attachable color-coded labels for selectively and correspondingly reassigning one or more of said color-assignable areas on one or more of said plurality of electrical outlets to a corresponding number of different ones of said plurality of peripheral devices[;]"

and, thus, by dependency, Claim 46 is also patentably distinct over the '718 Patent. The limitations that patentably distinguish Claim 46, as amended on March 13, 2003, from the '718 Patent are as follows:

1. "wherein said plurality of attachable color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color."

The limitations that patentably distinguish Claim 47, as amended on March 13, 2003, from the '718 Patent are as follows:

1. "a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices[;]"
2. "said housing member having color-assignable areas[;]"
3. "each outlet of said plurality of electrical outlets having a corresponding color-assignable area[;]"
4. "each device of said plurality of peripheral devices having a corresponding color-assignable area[;]"
5. "each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices[;]"
6. "a plurality of attachable color-coded labels for selectively and correspondingly reassigning one or more of said color-assignable areas on one or more of said plurality of peripheral devices to a corresponding number of different ones of said plurality of electrical outlets[;]"

and, thus, by dependency, Claim 48 is also patentably distinct over the '718 Patent. The limitations that patentably distinguish Claim 48, as amended on March 13, 2003, from the '718 Patent are as follows:

1. "wherein said plurality of attachable color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color."

See Appendix B for illustrations of the claimed solid color-coded **power distribution system**, including the claimed kit in contrast to the cited art '718 Patent power line **conditioner**. Appendix B contains illustrations which support both the September 5, 2002, Claims as well as the March 13, 2003, Claims.

Reiterating the relevant **human factors** considerations alluded in the May 22, 2000, Response to Final Office Action in the parent case, the present invention **solid color-coded housing outlet portions** or portions being retrofitted with **solid colored** stickers **appear more prominent to the human eye than do the cited art stripes**. Indeed, the **'718 Patent stripes are merely self-camouflaging**. In order to grasp this concept, the physiological concept of *visual acuity*, must be considered with respect to the claimed invention. Two classes of photoreceptors reside in the human eye, rods and cones. Rods perceive light and dark while cones perceive color. *Cones are usually concentrated in an area of the retina where the most direct beams will fall*, the area of greatest concentration being the *fovea centralis*. Ross M. Durham explains:[1]

> The fovea centralis is directly behind the lens, positioned to be right in the middle of images that enter the eye. It is the focal point of our visual field - the center of optical precision. It's the optic zone where the highest concentration of visual receptors exists; hence, it has the finest "grain" and is the point in the eye of greatest visual acuity. Nearly all the receptors in the human fovea are cones, and there are a great many of them packed into its square millimeter. This is the part of the eye that perceives details for us.

Thus, the **greatest visual acuity** and the **greatest visual efficacy**, as **human factors**, are provided by the present invention use of **solid colored** stickers, **not** by the cited art **camouflaged colored stripes**. By so tailoring the solid colored components in the Appellant's apparatus, the user will be able *to better see and follow a pathway from a given peripheral device to its respective housing member portion.* The Appellant respectfully submits that foregoing physiological principles form the very basis of camouflage (e.g., cited art stripes, rings, etc.) principles, the antithesis of the present invention.

In particular, Professors of Environmental Psychology, Drs. Patricia Valdez and Albert Mehrabian, explain the psychology of color perception:[2]

> "Showiness" (assumed here to be indicative of the arousing quality of a color) correlated positively with saturation and brightness. Furthermore, "calmness" (assumed to be indicative of the nonarousing quality of a color) correlated negatively with brightness. Together, these results suggest that arousal is a positive correlate of color saturation and brightness.
>
> ...

---

[1]Robert M. Durham, Human Physiology - Functions of the Human Body, p. 262 (Wm. C. Brown, publishers, 1989).

[2]Patricia Valdez and Albert Mehrabian, Effects of Color on Emotion, J. of Experimental Psychology: General, V. 123, p. 396-397, Amer. Psych. Assn., Inc. (1994).

> The following effects of hue were evident across the 23 samples as a group: ... *grey was bad, weak, and inactive*; ... and *color was good and active*. In addition, ..., and *activity was strongly associated with color (vs. no color)*.

On point is the psychology of ***patterned*** images (e.g., broken by **stripes**) versus ***solid*** images (e.g., **uniform blocks** of color) which is well described by Drs. James A. Russell and Albert Mehrabian as an environmental variable in consumer research:[3]

> Psychologists have traditionally explained a person's behavior in general - and consumer behavior in particular - as a function of two classes of variables: those variables describing differences in environments (an environment being anything that is external to the person whose behavior is being explained and that can be measured independently of that person - ...) and those variables describing differences in the persons (whatever a person brings with him to the environment and that can be measured independently of the environment).
>
> ...
>
> We first turned to the studies of perception .... The variables included hue, brightness, and saturation of colors; .... We therefore turned to evidence on cross-modality in which an individual is stimulated. ... there are basic responses to all types of stimuli. ... from ... color patches to whole environments filled with ... changing physical inputs.
>
> ...
>
> ... But information theory ... provides a powerful concept that helps describe the arousing quality of stimuli: the **information rate of an environment**. Environments that include more novel, complex, intense, unfamiliar, improbable, changing, moving, or uncertain aspects are greater in information rate. [Emphasis added.]

As such, the Appellant has utilized human factors engineering for one feature of the present invention (i.e., the solid color-coding aspect) in order **to optimize the information rate for the average consumer** when using the present invention.

Thus, simple environments (e.g., **solid color patches** such as in the **present invention**), having a **lower information rate** than complex environments (e.g., **thin stripes** of the '718 Patent), are **more efficiently perceived and recognized by the user as the mental processing rate is inversely proportional to the information rate** of the environment. Conversely, patterned images require considerably greater visual and mental processing than do solid images. The Appellant respectfully submits that the '718 Patent does not render unpatentable the present invention integral nor retrofitted solid color-coding as applied to a plug strip apparatus, intermediate cords, and peripheral devices which provides faster superior visual and mental recognition. Although the Examiner believes that motivation exists for modifying plug strips in general, ***the Examiner has not shown that the '718 Patent's camouflaged stripes, particularly***

---

[3]James A. Russell and Albert Mehrabian, Environmental Variables in Consumer Research, J. of Consumer Research, V. 3, pp. 62-63 (June, 1976).

evidences any solution to the problem of speedy visual identification along the lines of the present invention solid color-coding.

Reiterating, the **solid-colored outlet housing portions**, or portions being retrofitted by the kit, of the present invention are substantially more prominent to the human eye than the cited art stripes, as discussed supra. In further support, please see details contained in the previously submitted Declaration of Dr. Albert Mehrabian, under 37 C.F.R. § 1.132. In addition, the very purpose of the present invention is to *not* hardwire. Thus, the present invention provides nearly unlimited flexibility in allowing the user of any type of electronic peripheral device to customize his/her electronic "hook-ups" without "hang-ups" to an AC power strip. Since the solid color-coding is applied to a plug strip rather than to a specialized electronic apparatus, the user may connect *any* peripheral device to *any* outlet with *any* interconnect that he/she so chooses. The present invention allows the user to designate (via the retrofitting option) the solid color-coding, because the interconnects and the stickers are not "hardwired."

The Appellant respectfully submits that only the present application teaches the unique set of features comprising: (a) color-coding of a power strip system using *solid* colors for each power outlet (September 5, 2002, and March 13, 2003, Claims 41-48); (b) power cords in solid colors to correspond to the colors in the power strip, or, alternatively, solid color-coded indicia elements that can be attached to existing power cords supplied by manufacturers (September 5, 2002, and March 13, 2003, Claims 41-48); (c) solid color-coded indicia elements for retrofitting an existing power strip (September 5, 2002, and March 13, 2003, Claims 41-48) or, alternatively, solid color-coded indicia elements that can be attached to existing cords and/or equipment (September 5, 2002, and March 13, 2003, Claims 41-48); and (d) a plurality of outlet housing portions in conjunction with corresponding different solid colors for each outlet (September 5, 2002, and March 13, 2003, Claims 41-48).

Also, **outlet housing portions** of the housing member are **either integrally or retrofittedly** provided with solid color for distinguishing and associating a particular peripheral device to be electrically engaged at an outlet. The housing member may also be provided with solid color-coded indicia identifying the peripheral device in the vicinity of each outlet. Thus, while the solid colored stickers serve to identify the pathway (via any intermediate combination of cords) to a peripheral device, either a solid colored **outlet housing portion** of the housing member or a corresponding solid colored sticker having an integrally formed indicia identifies

such peripheral device by name (e.g., via symbols, numbers, words, or acronyms) in the present invention.

In the outstanding January 16, 2003, final Office Action, the Examiner concedes that **"Lee lacks the express teaching [of] a plurality of attachable color-coded labels for selectively reassigning one or more of said plurality of color-assignable areas to a corresponding number of different ones of said plurality of peripheral devices."** Further, the Examiner has previously conceded in the course of long and protracted prosecution that the '718 Patent does not disclose *"stickers," "a set," "that a sticker is to be attached to a peripheral device," "that the colored stickers are distinct from other stickers in the set," "whereby said plurality of colored stickers provide an after-market means integrally provided for facilitating ascertainment of correct power distribution to said peripheral device,"* and *"an electrical power strip apparatus in kit-form."* The cited '718 Patent for this ground of rejection merely describes **red stripes** applied to a ***power line conditioner***.

The Examiner conclusorily asserts that **using labels** is "obvious" **without** pointing to **any express motivation nor suggestion** in the cited reference (i.e., the '718 Patent) for doing so in combination with the claimed ***plug strip*** **apparatus**:

> However, ... **obvious ... to use "labels"** to apply to the housing member, outlets, and peripherals for the purpose of clearly identify[ing] the type of component that should be used with each outlet in accordance with the type of AC power processing associated with the outlet (col. 3, ll. 35-37).
>
> With regard to the feature of selective reassignment of the color-assignable areas[,] because the colored indicia disclosed in Lee is assigned arbitrarily, **the user is free to initially assign (reassign) system based on his/her preference**. Thus, because the user has flexibility at the outset, it follows that the user would also have the ability to reassign those preferences, if he/she should at a later date desire a different choice. **In essence, the configuration of the colored indicia in Lee is initially an *obvious matter of design choice*, and remains do throughout the life of the system so that at any time in the future, *the user can simply alter the placement of the colored indicia if desired.***

However, the Appellant respectfully submits that the Examiner's reasoning here is flawed, exemplifies impermissible hindsight reconstruction, and is, thus, specious: the issue with respect to obviousness is **not whether** the invention is **easy for the consumer to use, but** rather **whether the consumer would have conceived** of, and reduced to practice, the claimed invention. Essentially, the **very heart of all human factors inventions** is **to facilitate their use by the consumer**. That a consumer would be able to use and understand a given human factors

invention **does not necessitate** the conclusion that a consumer would then be able to also conceive and reduce to practice that very same human factors invention. For instance, that a consumer exists, who understands how to sit-on and adjust an ergonomic chair, does not necessitate the conclusion that this consumer would engineer the same claimed chair to **provide the specific combination of ergonomics**.

As such, the '718 Patent merely begs the question whether combining (a) a **solid color-coding system** with (b) a **plug strip apparatus** and (c) **retrofitting labels** is obvious or not. Clearly, the United States Patent Office's position with respect to the '718 Patent itself, was that combining (a) a **red striped** system with (b) a **power line conditioner was nonobvious**. The Examiner has not been able to cite any particular reference which teaches, motivates, or suggests the **presently claimed system comprising:** (a) a **solid color-coding** system; (b) a **plug strip apparatus;** and (c) a **retrofitting labels. If the Examiner's reasoning, as stated in the outstanding final Office Action, is taken to its conclusion, no human factors invention would ever be patented in the United States.** The Appellant respectfully submits that the Examiner has allowed the present invention's simplifying advantages for the consumer to prejudice her 35 U.S.C. § 103(a) analysis through inadvertent impermissible hindsight reconstruction.

5. Relevant case law with respect to application of 35 U.S.C. § 103(a)

With respect to the case law for sustaining a rejection of the claims, under 35 U.S.C. § 103(a), *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992):

> Vital Signs has not offered sufficient independent evidence to support the district court's decision to combine elements from different references, arguing only that the suggestion to combine references comes from knowledge and common sense of a person of ordinary skill in the art. See, e.g., *In re Bozek*, ... **That common knowledge may have been within the province of the ordinary artisan does not in and of itself make it so, absent clear and convincing evidence of such knowledge.** See *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fec. Cir. 1998); *AshlandOil, Inc. v. Delta Resins and Refractories, Inc.*, 776 F.2d 281, 297-98, 227 USPQ 657, 667 (Fed. Cir. 1985). Vital Signs, thus failed ... to establish why one of ordinary skill would have found it obvious to combine ... limitations in a particular way to achieve the ... invention.

However, the Appellant resubmits that *In re Jones* (1992), in restating the rule of *In re Fine* (1988) further defines the requisite suggestion for sustaining a § 103(a) rejection:

Before the PTO may combine the disclosures of two or more prior art references in order to establish prima facie obviousness, **there must be some suggestion for doing so** .... *In re Fine*, 837 F.26 1071, 1074, 5 USPQ2d 1596, 1598-99 (Fed. Cir. 1988). [at 1943] [emphasis added]

... the combination ... is not an extraordinary invention; it is deceptively simple. However, simplicity alone cannot be determinative of obviousness. See *Gentry Galley, Inc. v. Berkline Corp.*, 143 F.3d 1473, 1478 [45 USPQ2d 1498] (Fed. Cir 1998); See also *In re Oetiker*, 977 F.2d 1443, 1447 [24 USPQ2d 1443] (Fed. Cir. 1992) (**"Simplicity alone is not inimical to patentability."**). The standard of obviousness is not whether in hindsight, it seems elementary that someone would have combined these certain elements in the prior art to form the invention in question. .... It is insufficient to prove that at the time of the claimed invention, the separate elements of the device were present in the known art. Rather, there must have been some explicit teaching or suggestion in the art to motivate one of even ordinary skill to combine such elements so as to create the same invention. See *Arkie Lures, Inc. v. Gene Larew Tackle, Inc.*, 119 F.3d 953, 957 [43 USPQ2d 1294] (Fed. Cir. 1997).

The prior art **must provide** one of ordinary skill in the art the **motivation** to make the proposed molecular modifications needed to arrive at the claimed compound. [at 1944] [emphasis added]

In addition, *In re McLaughlin* held: "... the test for combining references is **not what the individual references themselves suggest but rather what the combination of disclosures taken as a whole would suggest** to one of ordinary skill in the art." *In re McLaughlin*, 170 USPQ at 212 (1971). The Court there further reversed the Board's decision, basing the reversal on a Rule 1.132 affidavit submitted by the Appellant: "The evidence, comprising **two affidavits and a series of exhibits**, indicates that the invention has been **commercially successful** and that its **concept was promptly adapted by a competitor**. Recognizing that the **inference of obviousness** drawn from the prior art disclosures **is only prima facie justification** for drawing the ultimate legal conclusion that the claimed invention is unpatentable under 35 U.S.C. 103, it is **imperative** that such **secondary considerations** also **be evaluated in determining the final validity of that legal conclusion**. .... **We emphasize** that such is true even where, as here, the claimed invention involves **only relatively simple mechanical concepts**. .... **'A patentable invention,** within the ambit of 35 U.S.C. 103, *may* result **even if the inventor *has*,** in effect, **merely combined features, old in the art, for their own purpose, without producing anything beyond the results inherent in their use.'"** *In re McLaughlin*, 170 USPQ at 212 (1971) [Emphasis added].

Further, *In re Fritch*, 922 F.2d 1260, 23 USPQ.2d 1780 (Fed. Cir. 1992), held:

Mere fact that prior art may be modified to reflect features of claimed invention does not make modification, and hence claimed invention, obvious **unless desirability of such modification is suggested by prior art** .... [at 1780] [emphasis added]

The mere fact that the prior art may be modified in the manner suggested by the Examiner does

> not make the modification obvious **unless the prior art suggested the desirability of the modification.** *In re Gordon*, 733 F.2d at 902, 221 USPQ at 1127. [at 1783] [emphasis added]

More recently, *Winner International Royalty Corp. v. Wang*, No. 96-2107, 48 USPQ.2d 1139 (D.C.D.C. 1998) has reinforced the foregoing rule, that the motivating suggestion must be explicit, in holding:

> ... invention cannot be found obvious **unless there was some explicit teaching or suggestion in art to motivate** one of even ordinary skill to combine elements so as to create same invention. [at 1140] [emphasis added]

> ... there **must have been some explicit teaching or suggestion in the art to motivate** one of even ordinary skill to combine such elements so as to create the same invention. [at 1444] [emphasis added]

Recently, on November 2, 2000, a rejection of claims under 35 U.S.C. § 103 was reversed by the U.S.P.T.O. Board of Patent Appeals and Interferences in *Ex Parte Yamamoto*, 57 USPQ2d 1382, 1384, on the ground that the ***examiner's mere conjecture and speculation*** (e.g., the Examiner's assertion of "common sense and common knowledge"), that one of ordinary skill in the art would have considered a prior art composition used for stabilizing higher aliphatic aldehyde compounds to also be useful for stabilizing the Appellant's claimed functional-group-containing compounds, ***are insufficient for making an obviousness rejection.***

The appealed invention of *Ex Parte Yamamoto* involves a method for stabilizing a *long-chain unsaturated aliphatic* ester, alcohol, ketone, or hydrocarbon, having at least ten carbon atoms and at least one double bond, by admixing with stabilizers *2'-(2'-hydroxy-5'methylphenyl)benzotriazole and a phenolic compound* at *0.1 - 10 wt. %* of the long-chain unsaturated aliphatic compound. The Examiner's cited reference, Ishihara et al. (U.S. Patent No. 4,568,771), disclosed a method for stabilizing an *aliphatic higher aldehyde compound* (i.e., a *pheromone*) by admixing with a stabilizer selected from a group consisting of *salicylic acid compounds, benzotriazole compounds* (e.g., *2'-(2'-hydroxy-5'methylphenyl)benzotriazole*), and other compounds (e.g., *di-tert-butyl-p-cresol*) at *0.01 - 10 wt. %* of the aldehyde compound. In reversing the rejection, the Board reasoned that the cited art method for stabilizing a *pheromone*, which happens to be an *aldehyde*, does not teach, motivate, nor suggest the claimed method for stabilizing *a long-chain unsaturated aliphatic compound* (e.g., an ester, a alcohol, a ketone, or a hydrocarbon having at least ten carbon atoms and at least one double bond) using a similar stabilizer composition (i.e., *2'-(2'-hydroxy-5'methylphenyl)benzotriazole* in conjunction with *di-*

tert-butyl-p-cresol). The Board's decision in *Ex Parte Yamamoto* reaffirmed the general rule that an obviousness rejection must be based in fact **(i.e., evidence or explanation regarding any teaching, suggestion, or motivation in or among the cited art)**, not in the examiner's mere conjecture or speculation that "one of ordinary skill would have found the claimed invention obvious to try."

Even more recently, *In re Zurko*, 59 USPQ2d 1697, 1698 (CAFC), decided on **August 2, 2001**, prior to the final Office Action dated August 29, 2001, in reversing the Board's decision, held:

> **Finally, the deficiencies of the cited references cannot be remedied by the Board's general conclusions about what is "basic knowledge" or "common sense" to one of ordinary skill in the art.** ... the Board contended that "it is basic knowledge that communication in trusted environments is performed over trusted paths" and ... verifying the trusted command ... is "nothing more than good common sense." .... We cannot accept these findings by the Board. **This assessment of basic knowledge and common sense was not based on any evidence in the record and, therefore, lacks substantial evidence support.** .... Rather, **the Board must point to some *concrete evidence* in the record in support of these findings.**[2] To hold otherwise would render the process of appellate review for substantial evidence on the record a meaningless exercise. .... Accordingly, we cannot accept the Board's unsupported assessment of the prior art. [Emphasis added.]

Thus, the Examiner cannot simply reach conclusions based on her own understanding or experience nor on her assessment, speculation, or conjecture as to what would be "basic knowledge" or "common sense."

6. Relevant case law applied to the evidence.

The Appellant respectfully submits that the Examiner has not sustained her burden of establishing a prima facie case of obviousness. On point with respect to the nature of the Examiner's rejections, is the case of *In re Gartside and Norton*, recently decided February 15, 2000, where the CAFC applied the well-established rules of *Dembiczak* (50 USPQ2d at 1616), *Graham* (148 USPQ at 467), *Pro-Mold* (37 USPQ2d 1626), and *Rouffet* (47 USPQ2d at 1456): "the ultimate determination ... whether an invention is or is not obvious is a legal conclusion based on underlying factual inquiries including (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness. ... the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is *rigorous application of the*

requirement for a showing of the teaching or motivation to combine prior art references. ... suggestion may come from ... the teachings of the references themselves, and ... from the nature of the problem to be solved." Evidence of suggestion may be a "trend in the art" towards solving the problem by one of ordinary skill in the proposed manner.

More particularly, *Dembiczak,* in Section II of that opinion, states, "Measuring a claimed invention against the standard established by section 103 requires the oft-difficult but critical step of casting the mind back to the time of the invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom of the field. .... Close adherence to this methodology is especially important ... where the very ease with which the invention can be understood may prompt one 'to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.' ... 'must specifically identify the reasons one of ordinary skill in the art would have been motivated to select the references and combine them' ... 'objective teaching [leading to the combination]' ... conclusion of obviousness was error 'when it did not elucidate any factual teachings, suggestions or incentives from this prior art that showed the propriety of combination' .... Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability — the essence of hindsight. ... the showing [of actual evidence] must be clear and particular. ... 'examiner's [mere] conclusory statement ... unaccompanied by evidence or reasoning ... is entirely inadequate to support the rejection.'"

Even more specifically on point are the rules of *In re Piasecki* (223 USPQ 785, 787-788) and *In re Lalu* (223 USPQ 1257, 1258) reiterated by *In re Fine* (5 USPQ2d at 1598), decided January 28, 1988, which states, **"Fine says the PTO has not established a prima facie case of obviousness. ... the references applied by the ... Examiner were improperly combined, using hindsight reconstruction, without evidence to support the combination .... He argues that ... the claims were rejected because the PTO thought it would have been 'obvious to try' the claimed invention, an unacceptable basis for rejection. We agree. The PTO has the burden ... to establish a prima facie case of obviousness. .... It can satisfy this burden only by a showing some objective teaching in the prior art or that the knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references."**

Although the Examiner has distilled the issues in the outstanding final Office Action by citing **only the '718 Patent** as the ground for rejection for the claims under § 103(a), the Examiner has not shown that the '718 Patent *expressly* suggests or motivates the claimed invention. **Since the Examiner herself has previously conceded, during examination, that the *"reasons"* for color-coding between the present invention and the cited art are distinct, the Appellant respectfully submits that *neither suggestion nor motivation can then be reasonably inferred* from the '718 Patent which is not newly cited.** Even if the concept of **color-coding**, in general, has been known, **the concept has never been applied to a *plug strip apparatus in combination with a retrofitting option*** until the present invention. The Examiner has yet to present any evidence that "a person *of ordinary skill in the art,*" the relevant art here being in *the area of plug strips*, would have thought to combine (1) a **plug strip** apparatus, (2) a **solid color-coding system**, and (3) a **retrofitting option**.

Further, the Examiner's very own previously cited case law, *In re McLaughlin*, held that **'A patentable invention, within the ambit of 35 U.S.C. 103, *may* result even if the inventor *has*, in effect, merely combined features, old in the art, for their own purpose, without producing anything beyond the results inherent in their use.'"** As such, even if the combination of the instant claimed elements only produced results "inherent in their use" (i.e., "expected beneficial results"), as asserted by the Examiner, the Appellant respectfully submits that this circumstance **would not and does not preclude patentability** under the law as stated in *McLaughlin*. By using the Appellant's own teachings to **"piece-together" the '718 Patent teachings with the Examiner's own speculation**, the Examiner has inadvertently engaged in the practice of basing her rejection on the prohibited "obvious to try" assertion.

C. Conclusion with respect to Issue IV

Thus, the '718 Patent does not teach, suggest, nor motivate the September 5, 2002, independent Claims 41, 43, 45, and 47, respectively reciting:

> 41. (New) A solid color-coded AC electrical power distribution system, said system comprising:
> a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,

said housing member, said plurality of electrical outlets, and said plurality of peripheral devices, each having a plurality of color-assignable areas,

each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and

a plurality of attachable color-coded labels for selectively reassigning one or more of said plurality of color-assignable areas to a corresponding number of different ones of said plurality of peripheral devices.

43. (New) A solid color-coded AC electrical power distribution system, said system comprising:

a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,

said housing member, said plurality of electrical outlets, and said plurality of peripheral devices, each having a plurality of color-assignable areas,

each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and

a plurality of attachable color-coded labels for selectively reassigning one or more of said plurality of color-assignable areas on said housing member to a corresponding number of different ones of said plurality of peripheral devices.

45. (New) A solid color-coded AC electrical power distribution system, said system comprising:

a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,

said housing member, said plurality of electrical outlets, and said plurality of peripheral devices, each having a plurality of color-assignable areas,

each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and

a plurality of attachable color-coded labels for selectively reassigning one or more of said color-assignable areas on one or more of said plurality of electrical outlets to a corresponding number of different ones of said plurality of peripheral devices.

47. (New) A solid color-coded AC electrical power distribution system, said system comprising:

a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,

said housing member, said plurality of electrical outlets, and said plurality of peripheral devices, each having color-assignable areas,

each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and

a plurality of attachable color-coded labels for selectively reassigning one or more of said color-assignable areas on one or more of said plurality of peripheral devices to a corresponding number of different ones of said plurality of electrical outlets.

Subsequently, the '718 Patent does not teach, suggest, nor motivate the September 5, 2002,

dependent Claims 42, 44, 46, and 48.

Likewise, the '718 Patent does not teach, suggest, nor motivate the March 13, 2003, independent Claims 41, 43, 45, and 47, respectively reciting:

41. **(Amended)** A solid color-coded AC electrical power distribution system, said system comprising:
a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,
said housing member having a plurality of color-assignable areas,
each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and
a plurality of attachable color-coded labels for selectively and correspondingly reassigning one or more of said plurality of color-assignable areas to a corresponding number of different ones of said plurality of peripheral devices.

43. **(Amended)** A solid color-coded AC electrical power distribution system, said system comprising:
a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,
said housing member having a plurality of color-assignable areas,
each outlet of said plurality of electrical outlets having a corresponding color-assignable area, and
each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and
a plurality of attachable color-coded labels for selectively and correspondingly reassigning one or more of said plurality of color-assignable areas on said housing member to a corresponding number of different ones of said plurality of peripheral devices.

45. **(Amended)** A solid color-coded AC electrical power distribution system, said system comprising:
a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,
said housing member having a plurality of color-assignable areas,
each outlet of said plurality of electrical outlets having a corresponding color-assignable area,
each device of said plurality of peripheral devices having a corresponding color-assignable area, and
each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and
a plurality of attachable color-coded labels for selectively and correspondingly reassigning one or more of said color-assignable areas on one or more of said plurality of electrical outlets to a corresponding number of different ones of said plurality of peripheral devices.

47. **(Amended)** A solid color-coded AC electrical power distribution system, said system

comprising:

a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,

said housing member having color-assignable areas,

each outlet of said plurality of electrical outlets having a corresponding color-assignable area,

each device of said plurality of peripheral devices having a corresponding color-assignable area, and

each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and

a plurality of attachable color-coded labels for selectively and correspondingly reassigning one or more of said color-assignable areas on one or more of said plurality of peripheral devices to a corresponding number of different ones of said plurality of electrical outlets.

Subsequently, the '718 Patent does not teach, suggest, nor motivate the March 13, 2003, dependent Claims 42, 44, 46, and 48. Therefore, the Appellant respectfully requests that the Examiner's grounds for rejection on this basis be reversed.

The Claims Do Not Stand Nor Fall Together:

The Appellant respectfully submits that the claims either stand or fall individually. With regard to the September 5, 2002, independent Claims 41, 43, 45, and 47, the September 5, 2002, Claims 42, 44, 46, and 48 are respectively dependent therefrom and differ in cumulative language as follows:

42. wherein said color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

44. wherein said color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

46. wherein said color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

48. wherein said color-coded labels further include indicia for identifying which of said

plurality of peripheral devices has been assigned a new color.

Likewise, with regard to the March 13, 2003, Claims 41, 43, 45, and 47, the March 13, 2003, Claims 42, 44, 46, and 48, are respectively dependent therefrom and differ in cumulative language as follows:

42. wherein said plurality of attachable color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

44. wherein said plurality of attachable color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

46. wherein said plurality of attachable color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

48. wherein said plurality of attachable color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

Thus, the Appellant likewise respectfully submits that the inventive features may be individually characterized; and that, therefore, the foregoing claims should not stand nor fall together. Only a truly anticipatory or expressly suggestive reference, in every sense, would be able to render all of the foregoing claims unpatentable.

CONCLUSION

Accordingly, either the September 5, 2002, or the March 13, 2003, pending Claims 41-48 encompass the full scope and breadth of the present invention, notwithstanding the Appellant's belief that the claims would have been allowable as originally filed. Therefore, reconsideration of the present application in light of the foregoing arguments is respectfully requested. The September 5, 2002, pending Claims 41-48 as well as the March 13, 2003, pending Claims 41-48 are believed to be fully supported by the originally filed Specification, and are believed to be in allowable form. In view of the foregoing arguments, the Appellant respectfully requests that the objection and rejections of the pending claims be REVERSED.

Respectfully submitted,

May Lin DeHaan

May Lin DeHaan
Reg. No. 42,472

MLD:pa
Date: May 13, 2003
LARIVIERE, GRUBMAN & PAYNE, LLP
Post Office Box 3140
Monterey, CA 93942
(831) 649-8800

APPENDIX A
(37 C.F.R. § 1.192(c)(9))

September 5, 2002, Claims:

41. **(New)** A solid color-coded AC electrical power distribution system, said system comprising:
a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,
said housing member, said plurality of electrical outlets, and said plurality of peripheral devices, each having a plurality of color-assignable areas,
each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and
a plurality of attachable color-coded labels for selectively reassigning one or more of said plurality of color-assignable areas to a corresponding number of different ones of said plurality of peripheral devices.

42. **(New)** A system, as recited in Claim 41, wherein said color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

43. **(New)** A solid color-coded AC electrical power distribution system, said system comprising:
a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,
said housing member, said plurality of electrical outlets, and said plurality of peripheral devices, each having a plurality of color-assignable areas,
each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for

associating each outlet with one of said plurality of peripheral devices; and

a plurality of attachable color-coded labels for selectively reassigning one or more of said plurality of color-assignable areas on said housing member to a corresponding number of different ones of said plurality of peripheral devices.

44. **(New)** A system, as recited in Claim 43, wherein said color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

45. **(New)** A solid color-coded AC electrical power distribution system, said system comprising:

a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,

said housing member, said plurality of electrical outlets, and said plurality of peripheral devices, each having a plurality of color-assignable areas,

each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and

a plurality of attachable color-coded labels for selectively reassigning one or more of said color-assignable areas on one or more of said plurality of electrical outlets to a corresponding number of different ones of said plurality of peripheral devices.

46. **(New)** A system, as recited in Claim 45, wherein said color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

47. **(New)** A solid color-coded AC electrical power distribution system, said system comprising:

a housing member having a plurality of electrical outlets for connecting electrical power

to a plurality of peripheral devices,

said housing member, said plurality of electrical outlets, and said plurality of peripheral devices, each having color-assignable areas,

each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and

a plurality of attachable color-coded labels for selectively reassigning one or more of said color-assignable areas on one or more of said plurality of peripheral devices to a corresponding number of different ones of said plurality of electrical outlets.

48. **(New)** A system, as recited in Claim 47, wherein said color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

March 13, 2003, Claims:

41. **(Amended)** A solid color-coded AC electrical power distribution system, said system comprising:

a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,

said housing member having a plurality of color-assignable areas,

each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and

a plurality of attachable color-coded labels for selectively and correspondingly reassigning one or more of said plurality of color-assignable areas to a corresponding number of different ones of said plurality of peripheral devices.

42. **(Amended)** A system, as recited in Claim 41, wherein said plurality of attachable color-

coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

43. **(Amended)** A solid color-coded AC electrical power distribution system, said system comprising:

a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,

said housing member having a plurality of color-assignable areas,

each outlet of said plurality of electrical outlets having a corresponding color-assignable area, and

each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and

a plurality of attachable color-coded labels for selectively and correspondingly reassigning one or more of said plurality of color-assignable areas on said housing member to a corresponding number of different ones of said plurality of peripheral devices.

44. **(Amended)** A system, as recited in Claim 43, wherein said plurality of attachable color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

45. **(Amended)** A solid color-coded AC electrical power distribution system, said system comprising:

a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,

said housing member having a plurality of color-assignable areas,

each outlet of said plurality of electrical outlets having a corresponding color-assignable area,

each device of said plurality of peripheral devices having a corresponding color-

assignable area, and

each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and

a plurality of attachable color-coded labels for selectively and correspondingly reassigning one or more of said color-assignable areas on one or more of said plurality of electrical outlets to a corresponding number of different ones of said plurality of peripheral devices.

46. **(Amended)** A system, as recited in Claim 45, wherein said plurality of attachable color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

47. **(Amended)** A solid color-coded AC electrical power distribution system, said system comprising:

a housing member having a plurality of electrical outlets for connecting electrical power to a plurality of peripheral devices,

said housing member having color-assignable areas,

each outlet of said plurality of electrical outlets having a corresponding color-assignable area,

each device of said plurality of peripheral devices having a corresponding color-assignable area, and

each area of said color-assignable areas on said housing member having a corresponding plurality of color-coded indicia for identifying and for associating each outlet with one of said plurality of peripheral devices; and

a plurality of attachable color-coded labels for selectively and correspondingly reassigning one or more of said color-assignable areas on one or more of said plurality of peripheral devices to a corresponding number of different ones of said plurality of electrical outlets.

48. **(Amended)** A system, as recited in Claim 47, wherein said plurality of attachable color-coded labels further include indicia for identifying which of said plurality of peripheral devices has been assigned a new color.

EXHIBIT A - ENVIRONMENTAL PSYCHOLOGY PUBLICATIONS

1. **Patricia Valdez and Albert Mehrabian, Effects of Color on Emotions, Journal of Experimental Psychology: General, 123, pp. 394-409 (1994) (16 pages).**

2. **Lyle E. Bourne and Bruce R. Ekstrand, Psychology: Its Principles and Meanings 3rd Ed., pp. 24-25, Holt, Rinehart and Winston (1979) (2 pages).**

Journal of Experimental Psychology: General
1994, Vol. 123, No. 4, 394–409

0096-3445/94/$3.00

Effects of Color on Emotions

Patricia Valdez and Albert Mehrabian

Emotional reactions to color hue, saturation, and brightness (Munsell color system and color chips) were investigated using the Pleasure-Arousal-Dominance emotion model. Saturation (S) and brightness (B) evidenced strong and consistent effects on emotions. Regression equations for standardized variables were: Pleasure = .69B + .22S, Arousal = −.31B + .60S, Dominance = −.76B + .32S. Brightness effects were nearly the same for chromatic and achromatic colors. Blue, blue–green, green, red–purple, purple, and purple–blue were the most pleasant hues, whereas yellow and green–yellow were the least pleasant. Green–yellow, blue–green, and green were the most arousing, whereas purple–blue and yellow–red were the least arousing. Green–yellow induced greater dominance than red–purple.

There is a large body of literature on the psychology of color. The research spans more than a century, covers a wide range of interests, and exhibits varying degrees of methodological rigor. The topics of investigation include: (a) color reactions as functions of personality and psychopathology, (b) physiological reactions to color, (c) color preferences, (d) color effects on emotions, (e) color effects on behavior, and (f) reactions to color concepts.

Methodological and Conceptual Issues

Color stimuli are characterized completely in terms of hue (i.e., wavelength), brightness or value (i.e., black-to-white quality) and saturation or chroma (i.e., purity or vividness, with lower saturation colors containing more grey). The following, more precise, definition of saturation is helpful: "Munsell chroma is often considered to be the approximate counterpart of perceived saturation. The Munsell chroma of a color sample is defined as the difference from a grey of the same lightness" (Agoston, 1979, p. 87).

As Gelineau (1981) noted, much of the research on color and affect is weak on several grounds. The methodological problems can be grouped in two broad categories. The first group includes studies that have failed to provide adequate specifications or controls of color stimuli (e.g., absence of controls for saturation and brightness while investigating effects of hue) and use of nonstandard or unspecified lighting conditions. The second group of studies failed to use sufficiently reliable, valid, or comprehensive measures of emotional responses to color stimuli. Thus, despite the substantial body of experimental work in this area, results have failed to provide a thorough and general characterization of relationships between color and affect.

Patricia Valdez and Albert Mehrabian, Department of Psychology, University of California, Los Angeles.

The present article is based on a dissertation written by Patricia Valdez and supervised by Albert Mehrabian.

Correspondence concerning this article should be addressed to Albert Mehrabian, Department of Psychology, 405 Hilgard Avenue, Los Angeles, California 90024.

The following review of some of the best studies in the field includes comments, when appropriate, on specific methodological problems associated with each study. It is useful, nevertheless, to provide a broad overview of the types of methodological problems encountered in this literature. (Specific studies exhibiting each type of methodological problem were reviewed by Valdez, 1993.)

The first group of methodological problems relates to color stimuli. Many studies have simply reported vague verbal descriptions of the color samples displayed to subjects. Other researchers selected color stimuli that they *felt* best represented particular hues, such as red or green. Also, a number of studies did not use actual color stimuli but instead elicited subjects' responses to verbal labels of color (e.g., "red" or "black").

Other studies have failed to relate the color samples used to a standardized system of color notation (e.g., Munsell). Some of these specified one aspect (usually hue) but failed to specify the two additional characteristics of color necessary for a complete description of the color samples used. Other researchers who have provided an exact specification of each color sample (e.g., a Munsell blue with saturation value of 8 and brightness of 5) have tested differences in reactions to color samples that confounded hue, saturation, and brightness effects.

The second group of methodological problems relates to responses to color (i.e., the dependent measures) and is illustrated by studies that have used adjective checklists with dubious reliability and validity to assess emotional reactions to color. An even more problematic technique involved having subjects match verbal emotion labels to different color samples. Single-emotion terms that refer vaguely to discrete emotional states (e.g., "exciting" or "comfortable") have doubtful reliability for assessing emotional reactions. Furthermore, in the absence of a theoretical system that interrelates discrete emotional states, single-emotion terms do not provide a basis for characterizing similarities and differences in emotional reactions to various colors.

Other studies have used extremely rudimentary measurement techniques by, for instance, requesting that subjects

rank the color samples on pleasantness. The single term "pleasantness" is apt to elicit different sets of associations from different subjects. Some people, for instance, may associate pleasantness with comfort and relaxation (i.e., pleasure plus low arousal), whereas others may associate it with excitement and elation (i.e., pleasure plus high arousal). Thus, whether used for characterizing color samples or for comparing (ranking) colors, single terms are likely to have doubtful reliability and validity in assessing emotions.

It also is difficult to abstract general patterns of findings from the color–emotion literature, because experimenters have used highly limited assessments of reactions to color (e.g., feelings of aggression) or have used different and nonoverlapping dimensions to assess emotional reactions to color (e.g., "happy" or "showy" in one study, as compared with "arousal" or "preference" in others). A comprehensive system for the description of emotions is needed to compare and contrast findings from studies that have used these nonoverlapping dependent measures.

The Pleasure–Arousal–Dominance (PAD) Emotion Model

General characterization of the emotional effects of color requires a framework for the general description of emotional states. The rationale for the PAD emotion model, used in the present series of studies, is reviewed here, because we use the model below to describe and interrelate findings that used a variety of verbal-report, physiological, and behavioral measures bearing on emotions.

Osgood, Suci, and Tannenbaum (1957) identified Evaluation, Activity, and Potency as three basic dimensions of meaning. These factors, originally extracted from reactions to verbal concepts, were replicated in studies of reactions to highly diverse stimuli, such as sonar signals and paintings (Osgood et al., 1957; Snider & Osgood, 1969). Mehrabian (1972) noted that the same or similar factors were obtained also from factor-analytic studies of social cues, including postures, body positions, facial and vocal expressions, gestures, and movements. The considerable generality of the semantic differential factors suggests that they represent lowest common denominators of cognition and are thus associated strongly with affective responses. These low-level cognitive–affective responses in turn form the basis for metaphorical comparisons of objects and events in distinct areas of human experience (e.g., Osgood, 1969).

Mehrabian and Russell (1974) suggested that the dimensions of pleasure–displeasure (the emotional counterpart of Evaluation), arousal–nonarousal (the emotional correlate of stimulus Activity), and dominance–submissiveness (the converse of stimulus Potency) could provide a general description of emotions. Their preliminary measures of pleasure, arousal, and dominance accounted for 27, 23, and 14 percent of variance, respectively, of emotional reactions to highly varied everyday situations (Mehrabian & Russell, 1974, Ch. 2).

Russell and Mehrabian (1977) also showed that most of the reliable variance in 42 verbal-report scales could be accounted for in terms of the PAD (i.e., pleasure, arousal, and dominance) emotion scales. Shaver, Schwartz, Kirson, & O'Connor (1987) used multidimensional analyses to study 135 emotion terms, and their results corroborated the PAD Emotion Model. Although they obtained two-dimensional (Evaluation and Intensity) and three-dimensional (Evaluation, Potency, and Activity) solutions, they found the three-dimensional representation of affect to be more informative than the two-dimensional one (Shaver et al., 1987, p. 1071).

The generality of the PAD Emotion Model is illustrated by dichotomizing each of the dimensions: pleasure (+P) versus displeasure (−P), arousal (+A) versus non-arousal (−A), and dominance (+D) versus submissiveness (−D). The resulting 2P × 2A × 2D emotion categories are illustrated by the following groups, which are derived from ratings of 240 emotional states on the PAD scales (Mehrabian, 1978; Russell & Mehrabian, 1977):

+P+A+D:	admired, bold, creative, powerful, vigorous
+P+A−D:	amazed, awed, fascinated, impressed, infatuated
+P−A+D:	comfortable, leisurely, relaxed, satisfied, unperturbed
+P−A−D:	consoled, docile, protected, sleepy, tranquilized
−P+A+D:	antagonistic, belligerent, cruel, hateful, hostile
−P+A−D:	bewildered, distressed, humiliated, in pain, upset
−P−A+D:	disdainful, indifferent, selfish-uninterested, uncaring, unconcerned
−P−A−D:	bored, depressed, dull, lonely, sad.

Sample average ratings on pleasure, arousal, and dominance (scored from −1 to +1), respectively, were as follows for some of the emotions in the preceding groups: bold (.44, .61, .66), impressed (.41, .30, −.32), comfortable (.85, −.19, .13), protected (.60, −.22, −.42), hostile (−.42, .53, .30), distressed (−.61, .28, −.36), uncaring (−.32, −.12, .28), bored (−.65, −.62, −.33).

The preceding review of the PAD Emotion Model illustrates the model's considerable generality and potential versatility as a descriptive system for emotions. Accordingly, in the present study we used improved versions of the PAD emotion scales, provided by Mehrabian (1978), to assess emotional reactions to color.

Color Reactions as Functions of Personality and Psychopathology

Despite considerable interest in this area, it is difficult to draw any reliable conclusions from the available work. Much of the relevant research is methodologically weak and usually has relied on the Rorschach (1942) and the Luescher Color Test (Luescher & Scott, 1969). Both of the latter measures have problems with respect to validity (e.g., note

Cerbus & Nichols, 1963, and Frank, 1976, for reviews of the literature).

Physiological Reactions to Color

These studies have been motivated largely by the hypothesis that long-wavelength colors (e.g., red and yellow) are more arousing than short-wavelength colors (e.g., blue and green). Experimental studies that have used physiological measures (e.g., galvanic skin response [GSR], electroencephalograph) generally have shown that red and yellow were indeed more arousing than blue and green (e.g., Gerard, 1958; Jacobs & Hustmyer, 1974; Wilson, 1966). For example, Wilson's (1966) subjects were exposed to five red and five green slides, in alternating order. Results with two measures supported the hypothesis that red is more arousing than green, with the effect being particularly apparent in the GSR data. It should be noted, however, that neither color brightness nor saturation were controlled in the study. More generally, none of the studies dealing with physiological reactions to color have investigated these reactions in relation to color brightness and saturation levels.

Color Preferences

Much of the earlier work dealing with color preferences has failed to control for the three dimensions of color—hue, saturation, brightness—and thus is methodologically flawed (e.g., Birren, 1952; Dashiell, 1917; Eysenck, 1941). Guilford (1934) and Guilford and Smith (1959), however, conducted some of the most systematic work in this area. Their studies yielded the following rank-ordering of hues, from most to least preferred: blue, green, purple, violet, red, orange, yellow. Also, Guilford and Smith (1959) found that brighter and more saturated colors elicited greater pleasure, with the relationships tending to be curvilinear.

Color Effects on Emotions

Experimenters used a variety of affect inventories and semantic measures in these studies. Jacobs and Suess (1975) investigated the effects of four primary colors (red, yellow, green, blue), projected onto a large screen. Scores on Spielberger, Gorsuch, and Lushene's (1970) State–Anxiety Inventory served as the dependent variable. Brightness and saturation levels of the colors were not controlled. Nevertheless, it is noteworthy that higher state-anxiety scores were associated with red and yellow than with blue and green. Because anxiety involves displeasure and high arousal, the latter findings were consistent with results from studies of physiological reactions to color (demonstrating that red and yellow were more arousing than blue and green) and with studies of color preferences (showing that red and yellow were less pleasant than blue and green).

Wexner's (1954) study dealt more generally with associations between color samples and words that describe feelings. The color red was associated with "exciting" and "stimulating," both of which imply pleasure and high arousal. Blue was associated with "secure/comfortable" and "tender/soothing," which imply pleasure and low arousal. Orange was associated with "disturbing/distressed/upset," implying displeasure and high arousal. Black was associated with "powerful/strong/masterful," implying high dominance. Although Wexner neither used standard specifications for her color samples nor controlled for brightness or saturation, her findings were generally in accord with those already reviewed.

Profusek and Rainey (1987) investigated the effects of rooms painted in red versus Baker–Miller pink on state anxiety. As hypothesized, pink elicited less anxiety than red.

Weller and Livingston (1988) investigated the effects of the color of paper (blue, pink, white) on which text was presented to subjects. Subjects read about rape and murder incidents and reported their emotional reactions to these events. The same events were less upsetting when described on pink paper than when described on blue or white paper. Brightness and saturation were not controlled in the study, although, pink generally tends to be of high brightness and low saturation, whereas white is of high brightness and is achromatic.

Subjects in Wright and Rainwater's (1962) study rated color chips on six connotative dimensions. "Showiness" (assumed here to be indicative of the arousing quality of a color) correlated positively with saturation and brightness. Furthermore, "calmness" (assumed to be indicative of the nonarousing quality of a color) correlated negatively with brightness. Together, these results suggest that arousal is a positive correlate of color saturation and brightness.

Color Effects on Behavior

A few studies have investigated effects of colors on distinct, and unrelated, behaviors. Garrett and Brooks (1987) found that ballot color (green vs. pink) affected voting behavior. When a candidate's sex was unspecified, men showed greater preference for candidates whose positions were printed on green ballots than for those whos positions were printed on pink ballots. Female subject showed the reverse preferences. However, ballot color ha no effect when candidate sex was specified: men tended t vote for men and women tended to vote for women, regard less of ballot color.

Damhorst and Reed (1986) investigated the effects o male raters of female job applicants' dark versus ligl clothing and facial expressions. Men rated models wh wore dark jackets as more powerful and competent th models who wore light jackets. Also, brightness of clothi was more important than facial expressions in determini judgments of potency. Finally, Frank and Gilovich (198 investigated the effects of black versus nonblack unifor of professional football and hockey teams on aggressi behavior. They found that black uniforms, compared w nonblack uniforms, not only were associated with grea degrees of perceived aggression but also led to higher lev of player aggressiveness.

Reactions to Color Concepts

Unlike the preceding studies, which investigated emotional and behavioral reactions to specific color stimuli, the final study noted here dealt with emotional reactions to color concepts. Adams and Osgood (1973) conducted a very comprehensive cross-cultural study in which subjects from 23 different cultures rated color concepts (e.g., the words, "blue," "green," "yellow") using the semantic-differential factors (Osgood et al., 1957).

The following effects of hue were evident across the 23 samples as a group: Blue and green were good; yellow was weak and bad; red was strong and active; black was bad, strong, and inactive; grey was bad, weak, and inactive; white was good and weak; and color was good and active. In addition, evaluation correlated strongly and positively with brightness, potency correlated positively with darkness, and activity was associated strongly with color (vs. no color).

The preceding review shows that, despite considerable interest and work in the field, studies have yet to provide a thorough and general characterization of the relationships between color and emotions. The present series of studies was designed to address various methodological and conceptual issues by (a) using a wide range of color samples, (b) referencing the color samples in terms of a standardized system (Munsell), (c) using experimental controls in investigating the effects of color hue, saturation, and brightness, (d) using standardized background and lighting conditions, and (e) using a comprehensive system of measures to assess emotional reactions.

Hypotheses

Hypotheses were abstracted from the review noted above and are summarized as follows. Pleasure is a positive correlate of brightness and saturation. Short-wavelength hues (e.g., blue, green) are more pleasant than long-wavelength hues (e.g., yellow, orange). Because, however, findings on the pleasantness of red were contradictory, red was hypothesized to be neutral on pleasantness. Long-wavelength hues are more arousing than short-wavelength hues. Arousal is a positive correlate of brightness and saturation. Dominance is a negative correlate of brightness.

Plan of the Studies

We conducted three studies and addressed the following three questions, respectively: How are emotions affected by (a) brightness and saturation of colors, (b) hue, and (c) brightness of achromatic colors? A within-subject design could not be used to investigate all of the preceding effects in a single study, because there were too many color samples requiring judgment. Accordingly, the color samples were organized into the three categories noted above, thus allowing the use of a within-subject design in the investigation of each question.

Study 1

Study 1 was designed to investigate the emotional impact of color saturation and brightness. In the study, saturation and brightness were within-subject factors, and hue, along with subjects, provided replications.

Method

Subjects

Two hundred and fifty University of California undergraduates (103 men, 147 women) served as subjects, in partial fulfillment of a course requirement.

Materials and Setting

Color samples. Color samples were taken from the Munsell Color System (available from the Macbeth division of Kollmorgen Corporation) and were on 3-in. × 5-in. (7.6-cm × 12.7-cm) cards. The following 10 hue groups from the Munsell Color System were used: red, yellow, green, blue, purple; and the five intermediate hues, yellow–red, green–yellow, blue–green, purple–blue, and red–purple.

A minimum of 7 color samples was chosen from each hue level so as to provide representative variations of brightness and saturation for each hue. As much as possible, selections within each hue represented combinations of high and low saturation with high and low brightness. In all, 76 color stimuli were selected for testing.

Display of color samples. The color stimuli were placed in the window of an 8.5-in. × 11.0-in. (22-cm × 28-cm) middle grey (Munsell value = 5) background.

Test setting. The room where subjects were tested contained no windows and was illuminated with eight fluorescent tubes (Sylvania GTE, Design 50, at 40 W) with a color temperature at 5,000° K, which approximates daylight. The choice of lighting was important, because data from Munsell color samples have been derived from the CIE data for illuminant "C," which represents daylight conditions. Angles of illumination and observation were in accordance with Commission Internationale de L'Eclairage (CIE) recommendations (Judd & Wyszecki, 1975). Color stimuli were positioned such that the top of the display page was leaning away from the subject at a 45° angle from the vertical position (to allow a 45° illumination angle). Stimuli were approximately 24 in. (61 cm) from subjects.

Measures of emotional state. We used Mehrabian's (1978) verbal-report Pleasure–displeasure, Arousal–nonarousal, and Dominance–submissiveness (PAD) scales to assess emotional responses to color.

Items of the PAD scales were in semantic-differential format. To ensure unconfounded assessment of each of the three basic emotion factors, Mehrabian (1978) selected precalibrated emotion terms for each pair. The 2 words in each pair had been rated almost equally on two emotion factors and differed greatly on the third remaining emotion factor. For instance, the 24 pairs (items) of the Pleasure–displeasure Scale were exemplified by "happy–cruel" and "affectionate–nasty." "Happy" and "cruel" had been rated almost equally with respect to connotations of arousal and dominance but differed with respect to pleasure. Similarly, "affectionate" and "nasty" fulfilled the requirement of differing on pleasure but being nearly equal on arousal and dominance.

For each pair, subjects placed a check mark in one of nine spaces separating the pair to show how they felt. The Arousal–nonarousal Scale contained 8 items exemplified by "troubled–dull" and "frustrated–sad." These pairs differed with respect to arousal but were almost equal on pleasure and dominance. The Dominance–submissiveness scale contained 15 items exemplified by "masterful–fascinated" and "violent–fearful."

Half the items in each of the Pleasure and Arousal scales and 7 of the 15 Dominance items were inverted to control for response bias. Items from all three scales were intermixed to achieve an opaque (nonobvious) assessment of the various emotions.

Procedure

Subjects were run in groups of 2. Each subject rated seven to nine different color samples within the same hue. The color samples were presented to subjects one at a time. The order of presentation of color samples was designed to avoid extreme (or minimal) changes in brightness and saturation in successive stimulus presentations. Instructions given the subjects included the following key statements: "I will present you with one color at a time. It is important that you take time to just look at the color and to think of how it makes you feel before you start to rate it. Look at the color as often and as long as you need to get an accurate rating."

Subjects responded to Mehrabian's (1978) three PAD emotion scales while viewing each color sample. When a subject completed rating a color sample, the completed emotional-response forms were removed, and a new set of blank forms was presented along with the next sample to be rated. A 5-min break followed the rating of the fourth color sample and was intended to maximize subject attentiveness in rating the remaining samples.

Results and Discussion

Reliabilities of the Dependent Measures

The 250 subjects in Study 1 each rated a minimum of seven color samples. In this way, pleasure, arousal, and dominance reactions were assessed a total of 1,896 times across color samples and subjects. Alpha internal consistency–reliability coefficients, based on these data, were .97 for the 24-item Pleasure–displeasure Scale, .85 for the 8-item Arousal–nonarousal Scale, and .90 for the 15-item Dominance–submissiveness Scale.

The preceding coefficients were high and provided evidence of satisfactory levels of internal consistency (reliability) for all three dependent measures of emotional state.

Computation of Averaged Emotional Reactions to Each Color Sample

A total of 76 color samples was used in Study 1, and each color sample was rated by approximately 25 subjects. Group reactions, rather than individual reactions, to each color sample were of primary interest from a pragmatic standpoint (i.e., with respect to possible generalizations from the present results to everyday life situations). Therefore, we computed average emotional reactions on pleasure, arousal, and dominance for each color sample across all subjects who rated that sample. These averaged values of pleasure, arousal, and dominance response to each color sample served as the dependent variables in subsequent data analyses reported below. It is important to note that basing statistical analyses of the data on such averaged (instead of individual reaction) scores to the color samples reduced the number of observations and provided more conservative estimates of statistical significance in the following analyses.

Linear Regression Analyses

We used stepwise multiple regression analyses to explor possible contributions of brightness and saturation to eac of the three dependent measures of emotional state (plea sure, arousal, and dominance).

In the first of three regression analyses, average pleasure–displeasure responses to each of the 76 colc samples constituted the dependent variable, and brightne and saturation were independent variables. Two analogo regression analyses were done for arousal–nonarousal ar dominance–submissiveness. Significance was assessed the .05 level and yielded the following three equation which are written for standardized variables to facilita comparisons of the magnitudes of various significant e fects. The numbers in parentheses to the right of ea equation are multiple regression coefficients.

(1) Pleasure = .69 Brightness + .22 Saturation (.6

(2) Arousal = −.31 Brightness + .60 Saturation (.7

(3) Dominance = −.76 Brightness + .32 Saturation (.

The multiple regression coefficients for Equations 1 range from .69 to .87, showing that a substantial portion variance in emotional response to colors is explained brightness and saturation levels of colors. This result is considerable importance in considering possible effects color hue on emotional response (investigated in Study

The positive relationships of brightness and satura with pleasure were hypothesized. As expected, brighter more saturated colors were more pleasant (Equation However, the differential magnitudes of these two eff had not been anticipated. The present results indicate brightness had a considerably stronger effect than satura on pleasure–displeasure reactions to color samples. though this result was not anticipated, it nevertheless resents an important generalization regarding emotiona sponses to color.

Equation 2, for arousal, indicates that less bright and saturated colors were more arousing. Here, the hypothe positive relationship between saturation and arousal correct; however, results were exactly opposite to tha pothesized for the relationship between brightness arousal.

One reason for the incorrect hypothesized relatio between brightness and arousal is that the latter hypo was inferred from reports that used experimental me that confounded brightness and saturation levels whil

ing for the effects of brightness. In retrospect, and given the present findings, it is apparent that previous studies tended to select highly saturated and bright colors when sampling for bright colors. Reexamination of each set of Munsell color chips within each hue shows that it is easy to think of bright colors as those that also are more saturated. Thus, the greater arousal response to such highly saturated color samples (used in previous studies) was incorrectly attributed to brightness rather than to saturation. This error was possible because the contribution of saturation to arousal is almost twice the magnitude (note the coefficient of +.60 in Equation 2) of the effect of brightness on arousal (a coefficient of −.31).

Equation 3 indicates that less bright and more saturated colors induced greater feelings of dominance in viewers. The effect of brightness had been hypothesized, although no hypothesis was offered regarding the relationship between saturation of colors and feelings of dominance they induced.

An alternate description of the results in Equation 3 is that the darker (less bright) colors elicited feelings of strength or boldness. Also, more saturated colors (being more vivid, purer, or stronger) also induced feelings of dominance. The regression results in Equation 3 also indicated that the effect of brightness was considerably stronger than that of saturation in determining dominance responses to color.

Table 1
Regression Coefficients for Brightness and Saturation as Determinants of Pleasure, Arousal, and Dominance in Study 1

Dependent variable	Regression coefficients (beta weights): Brightness	Saturation	Multiple regression coefficient
Pleasure			
Men & women	.69***	.22*	.69
Men only	.61***		.61
Women only	.68***	.23*	.68
Arousal			
Men & women	−.31***	.60***	.73
Men only	−.27**	.54***	.65
Women only	−.31***	.60***	.72
Dominance			
Men & women	−.76***	.32***	.87
Men only	−.72***	.21**	.79
Women only	−.73***	.36***	.86

Note. All coefficients are given for standardized variables (as beta weights) to facilitate comparisons of the relative magnitudes of effects.
* $p < .05$; ** $p < .01$; *** $p < .001$.

Separate Linear Regressions for Men and Women

We replicated the data analyses reported in the previous section separately for male and female subjects in Study 1. The objective of such additional analyses was to ascertain possible differences in emotional responses of men and women to brightness and saturation of colors. Results of these additional regression analyses are given in Table 1. For reference, Table 1 also contains overall results for the combined sample of men and women reported in the previous section.

Examination of Table 1 shows that men and women reacted with highly similar emotional responses to brightness and saturation levels of color samples. Overall, results for women were slightly stronger, as evidenced by a larger number of significant effects (in Table 1, color saturation related significantly to pleasure for women but not for men). Also, the magnitudes of the multiple regression coefficients were greater in the equations obtained for women, compared with men.

The statistical significance of this pattern of differences for men and women was assessed as follows. In six out of six comparisons of regression coefficients, the coefficients for women were larger than those for men, and this result was significant using the cumulative binomial distribution ($p = .0156$). This result suggested that women, compared with men, were slightly more sensitive in terms of their emotional reactions to brightness and saturation levels of colors.

Previous reviews of sex differences in color preferences (Norman & Scott, 1952; Whitfield & Wiltshire, 1990) have suggested general similarities in male and female preferences for (or rankings of) various colors, while noting sex differences in the strengths of those preferences. The present findings help shed additional light on the question of possible sex differences in reactions to colors. Very simply, men and women reacted in highly similar emotional ways to brightness and saturation levels of colors, with women consistently showing a slightly stronger pattern of reactions.

Nonlinear Regression Analyses

We conducted additional regression analyses to test for possible second-order curvilinear relationships between the dependent and independent variables. First we conducted three separate regression analyses (for the dependent variables pleasure, arousal, and dominance, respectively) to test for possible significance of saturation and (saturation)^2. None of these three regression analyses produced significance for the (saturation)^2. Emotional reactions to different saturation levels of color are thus described best as linear effects, as given in Equations 1–3 and in Table 1.

We conducted a second set of three regression analyses to test for effects of brightness and (brightness)^2 on pleasure, arousal, and dominance, respectively. No significant effect of (brightness)^2 was obtained for pleasure. Thus, the linear effect of brightness on pleasure, as given in Equation 1, and the separate effects of brightness on pleasure for each sex, as given in Table 1, are sufficient.

However, the corresponding analyses for arousal and dominance yielded the .01-level significant effects given in Equations 4 and 5 that follow. These equations are written for raw (nonstandardized) arousal and dominance scores and brightness values (of which six discrete levels had been

sampled and ranged from 5 to 60) taken from the Munsell system.

$$\text{Arousal} = 8.724 - 0.62(\text{Brightness}) + .007173(\text{Brightness})^2 \quad (4)$$

$$\text{Dominance} = 28.156 - 1.66(\text{Brightness}) + .016(\text{Brightness})^2 \quad (5)$$

The multiple regression coefficient for Equation 4 is .52. Actual mean values of arousal and those predicted from Equation 4 were plotted against brightness (for each of the six brightness values sampled) and showed extremely close agreement (see Figure 1). Both the actual and predicted plots showed arousal declined steeply and monotonically with increasing brightness up to a brightness value of 43, beyond which arousal reversed and increased slightly for the highest brightness value. Generally, then, arousal decreases as colors range from dark to light, but there is a small reversal and increase in arousal for the lightest colors.

The multiple regression coefficient for Equation 5 is .88. Actual mean values of dominance and those predicted from Equation 5 were plotted against brightness (for each of the six brightness values sampled) and showed extremely close agreement (see Figure 2). Both the actual and predicted plots showed that dominance declined steeply and monotonically with increasing brightness up to a brightness value of 43, beyond which dominance leveled off. Generally, then, dominance decreases as colors range from dark to light but levels off for the lightest colors.

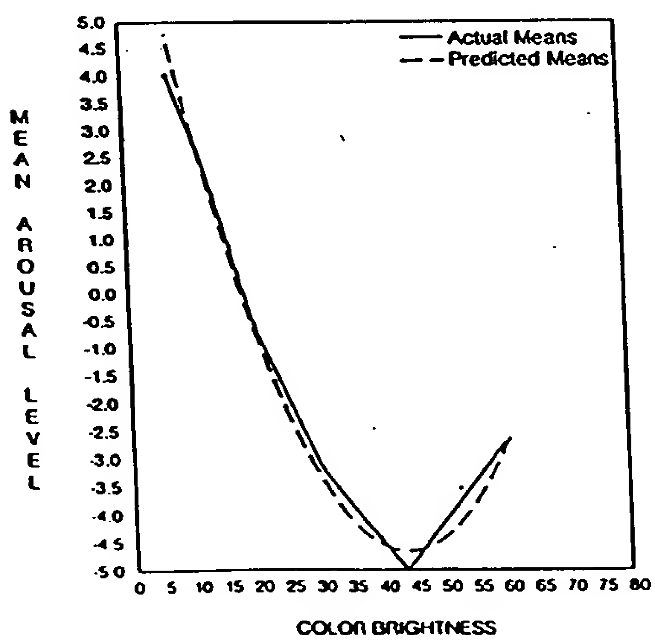


Figure 1. Actual and predicted average arousal levels as functions of color brightness in Study 1.

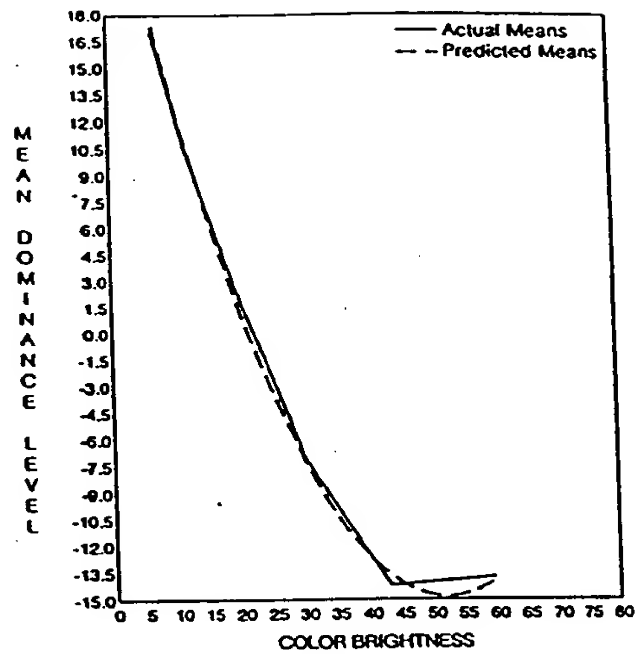


Figure 2. Actual and predicted average dominance levels a functions of color brightness in Study 1.

Study 2

In Study 2 we focused on the effects of color hue o emotions. Each subject rated 10 different hues of approx mately the same brightness and saturation levels. Thu here, hue was a within-subjects factor, and brightness a saturation, along with subjects, provided replications.

Method

Subjects

Subjects were 121 University of California undergraduates men, 74 women) who served in partial fulfillment of a cou requirement.

Materials and Setting

Five replication sets of 10 different hues were used. The different hues in each replication were of equal brightness saturation values. Furthermore, each of the five replications resented different levels of brightness and saturation.

The testing room, lighting, presentation of each color sa framed in the window of a middle-grey background, and emotional-state measures were identical to those used in Stu

Procedure

Subjects were run 2 at a time. Each subject rated his o emotional reactions to a succession of 10 color samples, which were of equal brightness and saturation and varied o hue. Subjects received instructions analogous to those in St

Each subject rated his or her reactions to the first color sample, was given a fresh set of rating sheets while he or she viewed the second color sample to rate, and so forth. To minimize subject fatigue, we gave subjects a 10-min break after they rated the fifth sample. Five more color samples were rated after the break. Order of presentation of the 10 hues varied between subjects and was designed to avoid ratings of adjacent wavelengths in succession.

Results and Discussion

Reliabilities of the Dependent Measures

The 121 subjects in Study 2 each rated 10 color samples. In this way, pleasure, arousal, and dominance reactions were assessed a total of 1,210 times across color samples and subjects. Alpha reliability coefficients obtained from these data were .97 for the Pleasure–displeasure Scale, .76 for the Arousal–nonarousal Scale, and .90 for the Dominance–submissiveness Scale. All three reliability coefficients were deemed satisfactory.

Computation of Averaged Emotional Reactions to Each Color Sample

Fifty color samples were used in Study 2, and each color sample was rated by nearly 25 subjects. As in Study 1, average pleasure, arousal, and dominance reactions to each color sample were computed across all subjects who had rated that sample. These averaged values of pleasure, arousal, and dominance response to each color sample served as the dependent variables in the data analyses reported below.

Multivariate Analysis of Variance (MANOVA)

We used MANOVA to explore possible effects of hue (10 levels), subject sex, and Hue × Sex on pleasure, arousal, and dominance reactions to colors. Significance of MANOVA effects was assessed at the .001 level. When significant multivariate effects were obtained, the corresponding significant univariate effects were interpreted.

The Hue × Sex interaction failed to achieve significance, $F(27, 240) = 0.66$, $p > .50$, thus indicating that men and women did not differ significantly in their emotional reactions to the sample of 10 hues.

The MANOVA yielded significance only for hue, $F(27, 240) = 5.85$, $p < .001$. Significant .01-level main effects were obtained in the univariate analyses of all three dependent measures: pleasure, $F(9, 80) = 21.21$; arousal, $F(9, 80) = 3.80$; dominance, $F(9, 80) = 3.06$.

Tukey's Multiple Comparison Procedure was used to test for simple effects of hue on each of the three dependent variables.

Effects of Color Wavelength on Pleasure

A difference exceeding 22.50 in mean pleasure ratings for any two hues (Tukey's $W = 22.50$) was significant at the .05 level. Figure 3 depicts a plot of mean pleasure responses to each of the 10 hues and is helpful in describing the significant findings. In Figure 3, the 2 complementary hues, purple and red–purple, are listed separately in the right-hand section of the graph.

Pleasure levels for blue, blue–green, green, red–purple, and purple were significantly greater than those for green–yellow, yellow, and yellow–red. Furthermore, pleasure levels for purple–blue and red were significantly greater than those for green–yellow and yellow. Finally, the pleasure level for yellow–red was significantly greater than that for yellow.

We analyzed data for the eight noncomplementary colors in a regression analysis in which wavelength was the independent variable and pleasure was the dependent variable. (The two complementary colors could not be included in the regression analysis, because these are not scaled alongside noncomplementary colors with respect to wavelength.)

Forty pleasure means (corresponding to five different colors in each of eight wavelength values) were available for analysis. Because the plot of actual means in Figure 3 suggests a curvilinear relationship, the regression analysis tested for effects of wavelength and (wavelength)^2 on pleasure ratings. The results of this regression analysis are summarized in Equation 6, which is written for raw pleasure scores and wavelength values of the color samples in the Munsell system. Significance of effects was assessed at the .05 level. The multiple regression coefficient for Equation 6 is .68.

$$\text{Pleasure} = 1561 - 5.48(\text{Wavelength}) + .0048(\text{Wavelength})^2 \quad (6)$$

Figure 3 also shows predicted pleasure scores, computed from Equation 6, for the eight noncomplementary wavelengths. The plot of predicted pleasure values in Figure 3 shows that Equation 6 provides only a rough approximation of the obtained means: Pleasure–displeasure reactions to noncomplementary colors were approximately a U-shaped function of wavelength, with yellows (green–yellow, yellow, and red–yellow) at the bottom portion of the U.

The latter findings were generally consistent with hypotheses derived from review of the literature. Nevertheless, the present findings provided a more concise way of describing relations of hue to pleasure: Short-wavelength hues were rated as being the most pleasant, with intermediate-wavelength hues being assigned low levels of pleasantness. Furthermore, yellow–red and red (the long-wavelength hues) reversed this trend and showed an increase in pleasure ratings. Finally, complementary colors (red–purple and purple) elicited high pleasure ratings comparable to ratings for the short-wavelength noncomplementary colors.

Effects of Color Wavelength on Arousal

As noted, the univariate effect of wavelength was significant for the dependent measure arousal. Using the Tukey test, a difference exceeding 4.55 in mean arousal ratings for

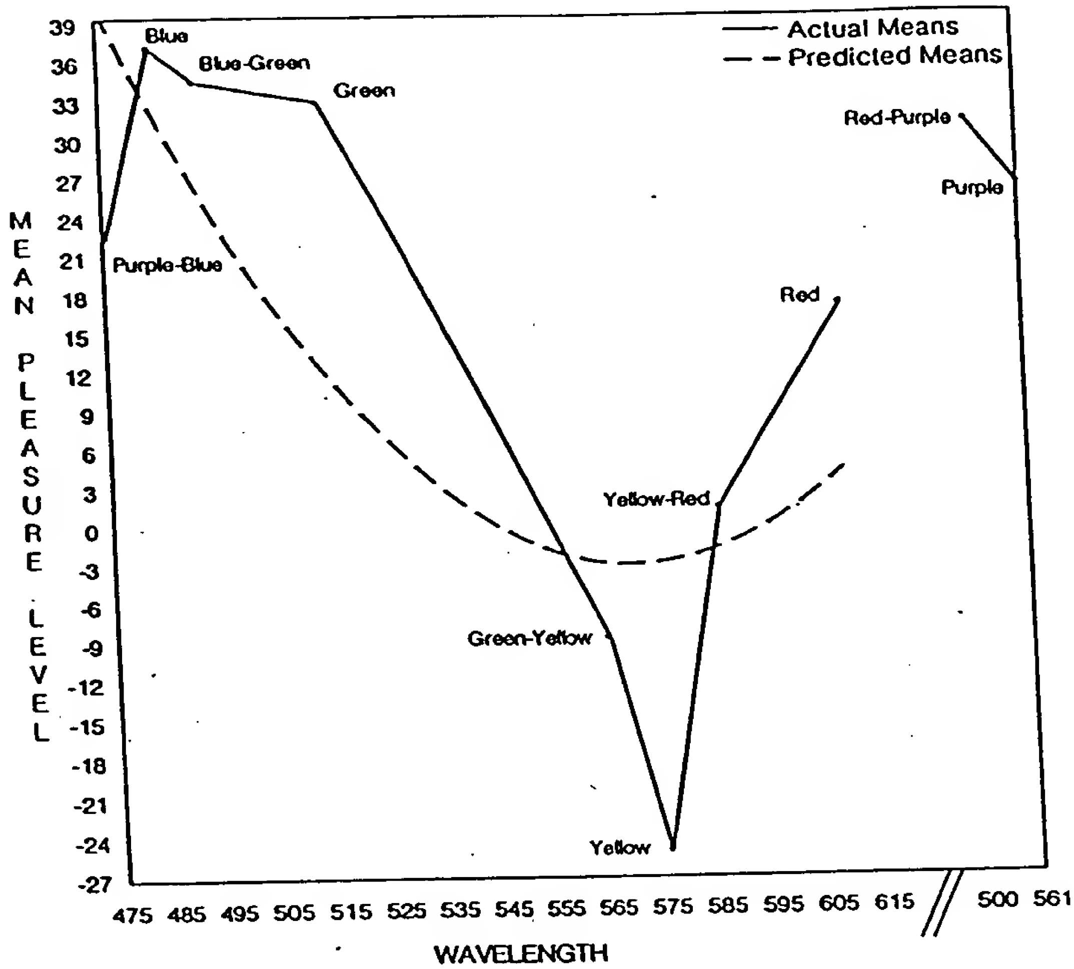


Figure 3. Actual and predicted average pleasure levels as functions of color wavelength in Study 2.

any 2 hues (Tukey's $W = 4.55$) was significant at the .05 level. Figure 4 provides a plot of mean arousal responses to each of the 10 hues. In Figure 4, the 2 complementary hues, purple and red–purple, are listed separately in the right-hand section of the graph.

The results given in Figure 4 did not support any of the hypothesized relationships between hue and arousal. Instead, the findings in Figure 4 showed that mean arousal level for green–yellow was significantly greater than the mean arousal levels for purple–blue, yellow–red, and red–purple. Also, the mean arousal level for blue–green was significantly greater than the mean arousal level for purple–blue.

We used a regression analysis to test for possible significance of a parabolic relationship of arousal (the dependent variable) to wavelength (the independent variable). Significance was not obtained for either the linear component of wavelength or for $(\text{wavelength})^2$.

The obtained results relating hue and arousal were generally weak and nonsignificant. The only noteworthy generalization is that the green hues (green–yellow, blue–green, and green) elicited the highest arousal reactions fro[m] subjects. In this context, it is interesting to note that som[e] fire departments are replacing their traditional highly sat[u]rated red trucks with trucks that have been painted gree[n] yellow. The changeover to green–yellow as a choice for [a]n attention-getting (or highly arousing) color is most appr[o]priate in terms of the present findings.

Effects of Color Wavelength on Dominance

The univariate effect of wavelength was significant [for] the dependent measure of dominance. Using the Tukey t[est,] a difference exceeding 12.48 in mean dominance ratings [for] any 2 hues (Tukey's $W = 12.48$) was significant at the [.05] level. Figure 5 depicts a plot of mean dominance respon[ses] to each of the 10 hues.

No hypotheses had been offered regarding relations[hips] of hue to dominance. The obtained results, shown in Fig[ure] 5, were generally weak and nonsignificant. The only pat[tern] of significant differences was as follows: Green–yellow

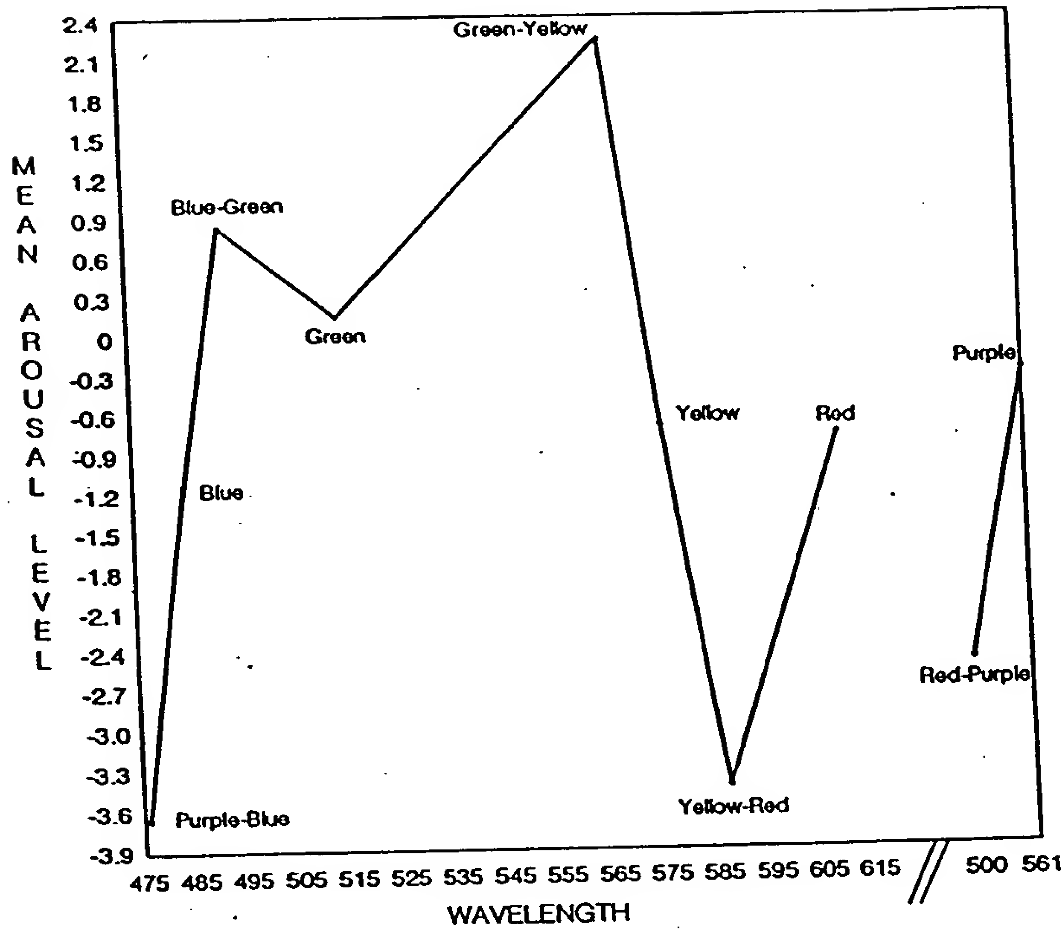


Figure 4. Mean arousal level as a function of color wavelength in Study 2.

yellow were rated as significantly more dominant than red–purple.

General Evaluation of Effects of Hue on Emotions

Findings in the present study that bear on relationships of hue to emotions were much weaker than anticipated. Although effects of hue on emotions were expected to be weaker than the effects of brightness and saturation, results were nevertheless disappointing. In particular, results relating hue to arousal and dominance were weak. In comparison, results bearing on relationships of hue to pleasure were far more detailed and provided substantial support for the corresponding hypotheses.

Study 3

In Study 3 we focused on the emotional impact of achromatic colors (i.e., white, three greys, black). Each subject judged all five samples.

Method

Subjects

Subjects were 25 University of California undergraduates (7 men, 18 women) who served in partial fulfillment of a course requirement.

Materials and Setting

Five achromatic color samples (corresponding to Munsell brightness values of 3, 12, 30, 43, and 79) were selected to represent the entire brightness dimension. The testing room, lighting, presentation of each color sample framed in the window of a middle-grey background, and emotional-state measures were identical to those used in Study 1.

Procedure

Subjects were run 2 at a time. Each subject rated his or her emotional reactions to all five achromatic color samples, one at a time. Subjects received instructions analogous to those in Study 1. Order of presentation of the five color samples was randomized across subjects.

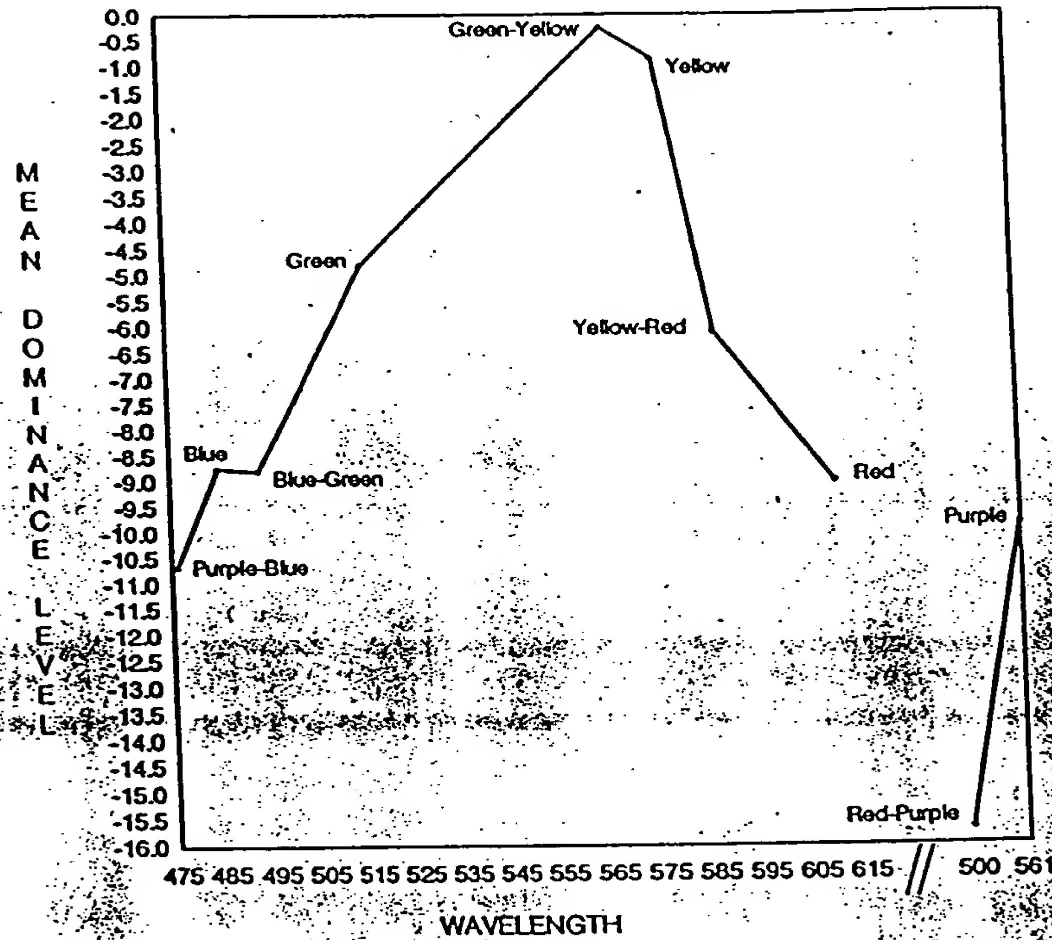


Figure 5. Mean dominance level as a function of color wavelength in Study 2.

Results and Discussion

Reliabilities of the Dependent Measures

The 25 subjects in Study 3 each rated five achromatic color samples, thus providing 125 pleasure, arousal, and dominance ratings. Alpha reliability coefficients were .98 for the pleasure scale, .80 for the arousal scale, and .93 for the dominance scale.

Computation of Averaged Emotional Reactions to Each Achromatic Color Sample

Five achromatic color samples (ranging from white to black) represented brightness variations only. Each color sample was rated by 25 subjects. As in Studies 1 and 2, we computed average pleasure, arousal, and dominance for each color sample across all subjects who rated that sample. These averaged emotional-response scores were used in subsequent data analyses.

Nonlinear Regression Analyses

We conducted three regression analyses to test for pc ble second-order curvilinear relationships between bri ness (the independent variable) and pleasure, arousal, dominance (the three dependent variables). Each regres analysis tested for possible significant effects of bright and (brightness)^2 on each dependent measure. Signific was assessed at the .01 level, and the results are summa in Equations 7, 8, and 9.

$$\text{Pleasure} = .71(\text{Brightness})$$

$$\text{Arousal} = 8 - 0.6915(\text{Brightness}) + .0073(\text{Brightness})^2$$

$$\text{Dominance} = 25 - 1.2675(\text{Brightness}) + .0088(\text{Brightness})^2$$

Equation 7 is written for standardized variable shows a multiple regression coefficient of .71. Equat

and 9 are written for raw values of arousal and dominance and for brightness values given in the Munsell system. Multiple regression coefficients are .47 and .65 for Equations 8 and 9, respectively. Plots of the actual and predicted mean values of arousal and dominance as functions of brightness are given in Figures 6 and 7, respectively.

The positive relationship between brightness of achromatic colors and pleasure, given in Equation 7, had been hypothesized. As expected, pleasure reactions increased as color samples ranged from black, through greys of increasing brightness, on to white. Stated otherwise, black was rated as least pleasant, greys were assigned intermediate values in pleasantness, and white was the most pleasant. The relationship between brightness and pleasure was very strong (note the beta weight of .71 in Equation 7) and highly significant.

The relationship of arousal to brightness of achromatic colors is given in Equation 8. No corresponding hypothesis had been offered. The results, plotted in Figure 6, show that arousal reactions to achromatic colors were a U-shaped function of brightness: Arousal response was greatest to black, diminished steadily for the three successive greys of increasing brightness, but increased to an intermediate value for white. Figure 6 also shows that the obtained arousal means for all five levels of brightness were predicted extremely well by Equation 8.

The relationship of dominance to brightness of achromatic colors is given in Equation 9. A negative relationship

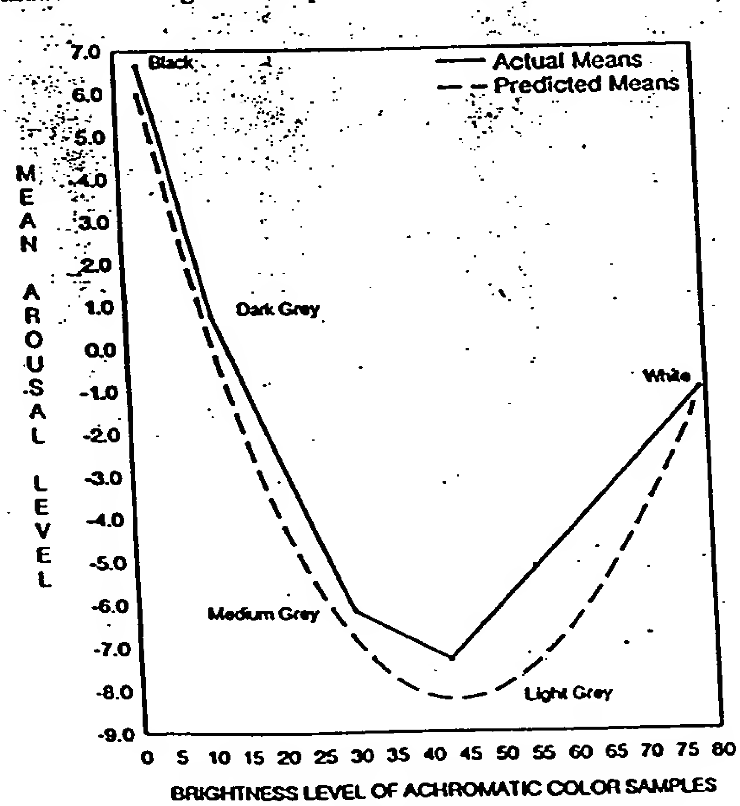


Figure 6. Actual and predicted average arousal levels as functions of brightness of achromatic colors in Study 3.

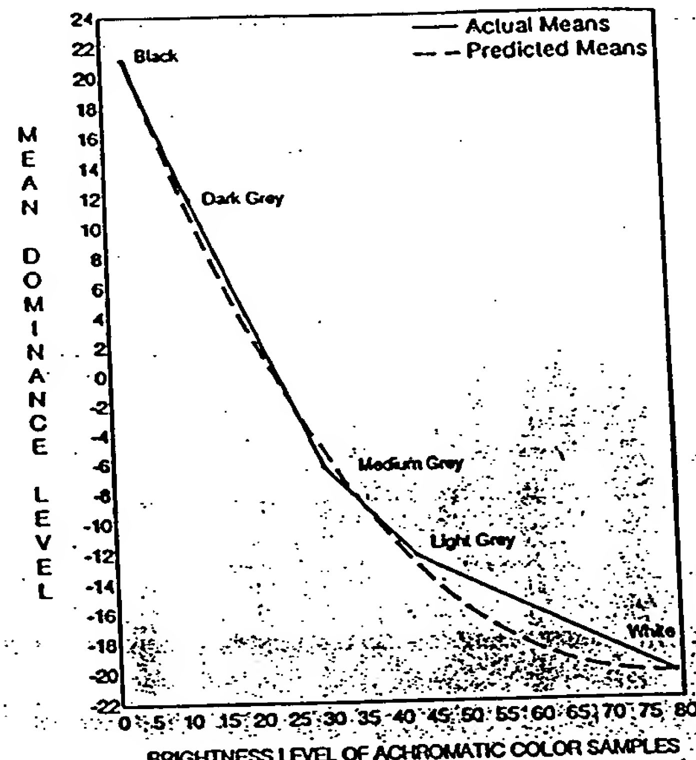


Figure 7. Actual and predicted average dominance levels as functions of brightness of achromatic colors in Study 3.

between dominance and brightness had been hypothesized. Results plotted in Figure 7 support this hypothesis but show the relationship to be parabolic: Although dominance decreased monotonically with increasing brightness, the slope became less steep for brighter colors. Thus, the color black elicited the highest level of dominance, greys elicited intermediate levels of dominance, and white elicited the lowest level of dominance. Figure 7 also shows that the obtained dominance means for all five levels of brightness were predicted extremely well by Equation 9.

General Discussion

Summary of Major Findings

The present studies provided highly consistent evidence regarding strong and highly predictable relationships of color brightness and saturation to emotional reactions. In comparison, relationships of hue to emotions were surprisingly weak, particularly for arousal and dominance reactions.

Effects of Brightness and Saturation

Results given in linear Equations 1–3 (or in Table 1) provided a surprisingly accurate description of the effects of color brightness and saturation on emotions. In addition,

Figures 1 and 2 provide further refinements regarding effects of very high brightness (i.e., the lightest colors).

Pleasure was simply a joint positive function of color brightness and saturation, being influenced more by brightness than by saturation. Arousal increased linearly and strongly with color saturation. Also, arousal was a ladle-shaped function of color brightness: It decreased with increases in color brightness up to a Munsell brightness value of 43. Beyond that brightness level, arousal reversed and increased slightly for the highest level of brightness tested (Figure 1).

Dominance increased linearly and moderately with color saturation and decreased sharply with increases in color brightness up to a Munsell brightness value of 43. Dominance leveled off beyond that brightness level (Figure 2).

Findings for the effects of brightness of achromatic colors in Study 3 were very similar to those obtained for chromatic colors in Study 1, which are summarized above. Pleasantness of achromatic colors correlated .71 with brightness (as compared with a corresponding beta weight of .69 in Equation 1 for chromatic colors). As shown in Figure 6, arousal reactions to achromatic colors were a ladle-shaped function of brightness, paralleling the corresponding relationship shown in Figure 1 for chromatic colors. Dominance reactions to achromatic colors, shown in Figure 7, were a monotonically decreasing function of brightness and paralleled the corresponding relationship for chromatic colors shown in Figure 2.

Artists and designers have often distinguished "warm" versus "cool" colors and have assumed that warmer colors induce greater activity (e.g., Hogg, 1969). Mehrabian and Russell (1974, Ch. 4) reviewed findings showing that judgments of color warmth were highly reliable and that color warmth–coolness was a positive correlate of color saturation and a negative correlate of color brightness. The present findings did indeed show consistent patterns of response to cool colors (low saturation, high brightness) versus warm colors (high saturation, low brightness), supporting the more intuitive groupings and interpretations of colors offered by practitioners of the arts.

Effects of Hue

Findings in Study 2 regarding emotional reactions to color hue tended to be weak. Nevertheless, as shown in Figure 3, consistent support was obtained for proposed hypotheses relating pleasure to hue (or wavelength). Blue, blue–green, green, purple–blue, red–purple, and purple were the most pleasant; whereas yellow, green–yellow, and red–yellow were the least pleasant; with red being rated at an intermediate value of pleasantness.

In comparison, far weaker results were obtained relating hue to arousal or to dominance. The most arousing hue was green–yellow, followed by blue–green and green, whereas the least arousing hues were purple–blue, yellow–red, and red–purple (Figure 4). Finally, dominance reactions were greatest to green–yellow and yellow and differed from reactions to red–purple, which elicited submissive feelings.

The latter weak findings failed to support hypotheses bearing on the relationships of hue to arousal (no hypotheses had been offered for hue in relation to dominance). Findings bearing on color saturation and brightness in relation to arousal (Study 1) helped explain some of the common errors in assessing effects of hue on arousal. Examination of the Munsell color chips for each hue shows that there are systematic differences in saturation and brightness of colors considered typical or representative of each hue. For example, the samples of red that are commonly used in experiments are typically of very high saturation. This accounts for the common error in inferring that red is arousing. In fact, it is the high saturation of the red color samples used, rather than its hue, that accounts for the high levels of arousal observed.

Thus, many commonly held assumptions regarding the effects of color hue on arousal can be seen as being due to systematic confounding, in previous studies, of hue with brightness, saturation, or both, in assessing the arousing effects of hue. The hue–arousal hypotheses offered here were based primarily on physiological studies that assessed GSR reactions of subjects to rooms (or to slide projections) described as "green" or "red." All experiments that served as the basis for the proposed hypotheses failed to control for brightness and saturation effects in investigating effects of hue on arousal.

Theoretical Rationale for the Present Findings

A systematic theoretical explanation of the patterns of consensus reactions to color obtained here is beyond the scope of this paper. Nevertheless, it is useful to note Adams and Osgood's (1973) discussion of mechanisms that could explain consensus reactions to color—physiology of vision and commonly shared experiences with the environment. Their comments can be restated as follows in reference to the present findings. Physiological explanations are exemplified by the idea that photoreceptors may be stimulated more strongly by more saturated and darker colors, thus accounting for the association of such colors with high-arousal and high-dominance emotions. Common environmental experiences are illustrated by the association of clean and light-colored objects and their contrast with dirty and dark-colored ones. Although the latter are mere speculations, they may help identify fruitful avenues in the pursuit of a theoretical rationale to explain shared emotional reactions to color.

Implications Regarding the Emotion–State Measures

Assessments of emotional responses to color were reasonably comprehensive. We used the PAD emotion model and associated measures (Mehrabian, 1978, 1980); the PAD model was helpful in formulating general conclusions from previous experimental work that had used a large variety of apparently unrelated measures of emotional reactions to color.

Reliabilities of the PAD emotion scales were consistently high and satisfactory. Across all three studies, alpha reliability coefficients averaged .97 for the pleasure–displeasure scale, .80 for the arousal–nonarousal scale, and .91 for the dominance–submissiveness scale.

Validity of the PAD scales has been established in a large number of studies (e.g., Mehrabian, 1980, 1987). Indirect and tangential assessments of validity were provided here by the extent to which hypotheses derived from the literature were supported. With one exception, all hypotheses relating saturation and brightness to emotional reactions were supported. Failure to support the brightness–arousal hypothesis was explained readily by noting a systematic bias in the selection of highly arousing colors in previous experiments: Typically, experimenters have confounded high saturation with high brightness in investigating effects of brightness on arousal, thereby leading to the present incorrect hypothesis regarding that relationship.

A striking pattern of findings from the present studies also provided construct validity for the PAD scales. Study 1 yielded relationships of color brightness to pleasure, arousal, and dominance for a large sample of chromatic colors. In comparison, Study 3 provided the same relationships for a sample of achromatic colors. As noted in the summary of findings above, these findings for chromatic and achromatic colors were analogous. The similarity of color brightness–emotional reaction relationships in Studies 1 and 3, despite nonoverlapping samples of subjects and stimuli, provided strong evidence not only of replicability of the present findings but also of construct validity of the measurement instruments.

A final issue bearing on the PAD measures pertains to affect–cognition relationships. The adequacy and relevance of verbal-report measures for assessing emotional reactions to color may be questioned. In particular, one may argue that such reports can be attributed to cognitive reactions (e.g., learned conceptual associations to color names) rather than to physiological or visceral responses. A narrow answer to this argument is that the experimental procedure was designed deliberately to elicit emotional, rather than cognitive, reactions to the colors. Thus, no references to color names were made, and subjects were presented simply with various color samples and asked, specifically, to indicate how each sample made them *feel*.

On a more general level, although our procedures focused on emotions, the theoretical basis of the PAD emotion model suggests strong associations between cognition and affect. Indeed, the PAD scales are analogues of the Evaluation, Activity, and Potency factors which, in turn, may be characterized as the lowest common denominators of cognitive response. Thus, within the PAD model, the most rudimentary cognitive judgments (such as those that adult humans share with infants or animals) cannot be distinguished easily from emotional reactions. Instead, emotional responses are viewed as providing the essential foundation to cognitive judgments (i.e., attitudes, judgments, or preference are not considered possible in an emotional vacuum).

The association between affect and cognition is likely to be strongest in psychological functions that develop without the benefit of instruction or formal education (i.e., where cognition is unsophisticated and rudimentary). Because reactions to colors or odors exemplify such functioning, using the PAD scales to measure reactions to color is likely to produce emotion-based assessments.

Sex Differences

Results in Study 1 (Table 1) showed that men and women responded with highly similar emotional reactions to variations in color saturation and brightness. However, a small, though consistent and statistically significant, difference showed that women were more sensitive to brightness and saturation than men; that is, they exhibited more extreme emotional reactions to varying levels of color brightness and saturation.

Results in Study 2 showed that the multivariate Hue × Sex interaction on pleasure, arousal, and dominance was not significant. Thus, we inferred that men and women responded with similar emotional reactions to various hues (or wavelengths).

Together, findings from Studies 1 and 2 showed that emotional reactions to colors tended to be surprisingly similar for men and women. Large differences in magnitudes of effects or dramatic reversals of effects were totally lacking when comparing men's and women's reactions to colors.

Generalizability of Findings

A weak case for generalizability of findings can be made from findings in Study 1 that showed more saturated colors elicited greater feelings of arousal. Certain colors have been shown to elicit higher levels of GSR, pulse rate, or blood pressure in laboratory situations. Our preceding discussion suggested that the color samples that have been used (typically, red vs. green) also have exhibited differences in saturation values. Thus, more saturated colors (e.g., highly saturated red rooms or 3-ft × 5-ft [0.9-m × 1.5-m] projections of red) have elicited greater levels of arousal than have the less saturated greens used in the studies.

Findings relating brightness to emotions in Studies 1 and 3 provided a much stronger case regarding generalizability of the present findings to situations outside the laboratory. Findings in both studies showed that brighter colors (e.g., whites, light greys, or lighter colors) are more pleasant, less arousing, and less dominance-inducing than are the less bright colors (e.g., dark greys, blacks, and darker colors).

Using the abbreviations P for pleasure, A for arousal, and D for dominance, the effect of brightness is thus summarized as follows:

$$\text{Brightness} = +P - A - D \tag{10}$$

or

$$\text{Darkness} = -P + A + D. \tag{11}$$

The constellation $-P +A +D$, elicited by dark colors, represents emotions such as anger, hostility, or aggression.

For instance, Mehrabian and O'Reilly (1980) obtained Equation 12 for Jackson's (1967) measure of aggression, and Russell and Mehrabian (1974) obtained Equation 13 for anger.

$$\text{Aggression} = -.36\,P + .20\,A + .28\,D \tag{12}$$

$$\text{Anger} = -.74\,P + .36\,A + .09\,D \tag{13}$$

Thus, one generalization from the present findings is that darker colors are likely to elicit feelings that are similar to (or weaker variants of) anger, hostility, or aggression. Darker colors are also expected to elicit feelings that constitute components of aggression, anger, or hostility (e.g., displeasure, high arousal, or dominance).

Results obtained by Frank and Gilovich (1988) were consistent with the preceding formulations. Black uniforms, compared with nonblack uniforms, not only were associated with greater degrees of perceived aggression but also led to higher levels of aggressive behavior. Also, Damhorst and Reed (1986) showed that models wearing dark jackets were rated as more powerful and more competent than models wearing light jackets. Indeed, brightness of clothing had a stronger effect than facial expressions on viewer perceptions of potency. Thus, Damhorst and Reed's findings were also consistent with the present results in that they both show that darker colors are associated with greater dominance.

A third example of generalization from the present findings bears on reports from correctional facilities regarding the calming and aggression-reducing effects of Baker–Miller pink (Schauss, 1981). The color sample we used in the present studies that is closest to Baker–Miller pink is a bright, low-saturation, red–purple. Red–purple was shown to elicit low arousal levels (Figure 4), brighter colors were less arousing (Table 1), and less saturated colors were less arousing (Table 1). Thus, by virtue of its high brightness, low saturation, and red–purple hue, Baker–Miller pink was shown in the present studies to elicit low levels of arousal.

In addition, bright and low-saturation colors were shown here to elicit low levels of dominance (Table 1). Furthermore, the hue red–purple received the lowest score on dominance (Figure 5). Thus, Baker–Miller pink was shown here to also elicit low levels of dominance. Insofar as reductions of arousal and of dominance tend to reduce aggression or anger (note Equations 12 and 13), the preceding observations of inmates in correctional facilities, then, provide an interesting case for generalization of the present findings to real-life situations.

In a similar vein, Weller and Livingston (1988) found that subjects were less upset when they read about murder or rape printed on pink paper rather than on blue or white paper. Thus, pink elicited less anxiety or anger than blue or white; this is again consistent with the present findings.

Overall, then, evidence available from studies that have used a variety of color stimuli (including colored objects, rooms, or clothing), when interpreted within the PAD Emotion Model, tends to be consistent with results obtained in the present studies. Thus, we conclude tentatively that our results can be generalized to color stimuli encountered in everyday situations.

However, it is noteworthy that the context in which color is used can have a substantial bearing on generalizability of the present findings. Although the present data indicated blue to be a pleasant color, blue hair or blue food, for instance, are not expected to elicit pleasant reactions. On the contrary, such stimuli may elicit unpleasant reactions because of the inappropriateness of the color on the particular stimulus (hair or food). Thus, findings given here are expected to have relevance only in situations in which colors are reasonable and probable elements of those situations.

References

Adams, F. M., & Osgood, C. E. (1973). A cross-cultural study o the affective meanings of color. *Journal of Cross-Cultural Psy chology*, *4*, 135–156.

Agoston, G. A. (1979). *Color theory and its application in art an design*. New York: Springer-Verlag.

Birren, F. (1952). The emotional significance of color preferenc *American Journal of Occupational Therapy*, *79*, 61–63.

Cerbus, G., & Nichols, R. C. (1963). Personality variables ar response to color. *Psychological Bulletin*, *60*, 566–575.

Damhorst, M. L., & Reed, J. A. P. (1986). Clothing color val and facial expression: Effects on evaluations of female j applicants. *Social Behavior and Personality*, *14*, 89–98.

Dashiell, J. F. (1917). Children's sense of harmonies in colors a tones. *Journal of Experimental Psychology*, *11*, 466–475.

Eysenck, J. J. (1941). A critical and experimental study of co preferences. *American Journal of Psychology*, *54*, 385–394.

Frank, G. (1976). On the validity of hypotheses derived from Rorschach: I. The relationship between color and affect. *Perceptual and Motor Skills*, *43*, 411–427.

Frank, O. M. G., & Gilovich, T. (1988). The dark side of self- social perception: Black uniforms and aggression in professio sports. *Journal of Personality and Social Psychology*, 74–85.

Garrett, J. C., & Brooks, C. I. (1987). Effect of ballot color, se candidate, and sex of college students of voting age on t voting behavior. *Psychological Reports*, *60*, 39–44.

Gelineau, E. P. (1981). A psychometric approach to the meas ment of color preference. *Perceptual and Motor Skills*, 163–174.

Gerard, R. (1958). *Differential effects of colored lights on psy logical functions*. Unpublished doctoral dissertation, Unive of California, Los Angeles.

Guilford, J. P. (1934). Affective value of color as a functio hue, tint, and chroma. *Journal of Experimental Psycholog* 342–370.

Guilford, J. P., & Smith, P. C. (1959). A system of color p ences. *American Journal of Psychology*, *72*, 487–502.

Hogg, J. (1969). *Psychology and the visual arts*. New Penguin Books.

Jackson, D. N. (1967). *Personality Research Form M.* Goshen, NY: Research Psychologists Press.

Jacobs, K. W., & Hustmyer, F. E. (1974). Effects of four p logical primary colors on GSR, heart rate, and respiratio *Perceptual and Motor Skills*, *38*, 763–766.

Jacobs, K. W., & Suess, J. F. (1975). Effects of four psycho primary colors on anxiety state. *Perceptual and Motor* *41*, 207–210.

Judd, D. B., & Wyszecki, G. (1975). *Color in business, science, and industry.* New York: Wiley.

Luescher, M., & Scott, I. (1969). *The Luescher Color Test.* New York: Random House.

Mehrabian, A. (1972). Nonverbal communication. In J. K. Cole (Ed.), *Nebraska symposium on motivation, 1971* (Vol. 19, pp. 107–161). Lincoln: University of Nebraska Press.

Mehrabian, A. (1978). Measures of individual differences in temperament. *Educational and Psychological Measurement, 38,* 1105–1117.

Mehrabian, A. (1980). *Basic dimensions for a general psychological theory: Implications for personality, social, environmental, and developmental studies.* Cambridge, MA: Oelgeschlager, Gunn & Hain.

Mehrabian, A. (1987). *Eating characteristics and temperament: General measures and interrelationships.* New York: Springer-Verlag.

Mehrabian, A., & O'Reilly, E. (1980). Analysis of personality measures in terms of basic dimensions of temperament. *Journal of Personality and Social Psychology, 38,* 492–503.

Mehrabian, A., & Russell, J. A. (1974). *An approach to environmental psychology.* Cambridge, MA: MIT Press.

Norman, R. D., & Scott, W. A. (1952). Color and affect: A review and semantic evaluation. *Journal of General Psychology, 46,* 185–223.

Osgood, C. E. (1969). On the whys and wherefores of E, P, and A. *Journal of Personality and Social Psychology, 12,* 194–199.

Osgood, C. E., Suci, G. J., & Tannenbaum, P. H. (1957). *The measurement of meaning.* Urbana: University of Illinois Press.

Profusek, P. J., & Rainey, D. W. (1987). Effects of Baker-Miller pink and red on state anxiety, grip strength, and motor precision. *Perceptual and Motor Skills, 65,* 941–942.

Rorschach, H. (1942). *Psychodiagnostics.* New York: Grune & Stratton.

Russell, J. A., & Mehrabian, A. (1974). Distinguishing anger and anxiety in terms of emotional response factors. *Journal of Consulting and Clinical Psychology, 42,* 79–83.

Russell, J. A., & Mehrabian, A. (1977). Evidence for a three-factor theory of emotions. *Journal of Research in Personality, 11,* 273–294.

Schauss, A. G. (1981). Application of behavioral photobiology to human aggression: Baker–Miller pink. *International Journal of Biosocial Research, 2,* 1–9.

Shaver, P., Schwartz, J., Kirson, D., & O'Connor, C. (1987). Emotion knowledge: Further exploration of a prototype approach. *Journal of Personality and Social Psychology, 52,* 1061–1086.

Snider, J. G., & Osgood, C. E. (Eds.). (1969). *Semantic differential technique.* Chicago: Aldine.

Spielberger, C. D., Gorsuch, R. L., & Lushene, R. E. (1970). *Manual for the State–Trait Anxiety Inventory.* Palo Alto, CA: Consulting Psychologists Press.

Valdez, P. (1993). *Emotion responses to color.* Unpublished doctoral dissertation, University of California, Los Angeles.

Weller, L., & Livingston, R. (1988). Effects of color of questionnaire on emotional responses. *Journal of General Psychology, 115,* 433–440.

Wexner, L. B. (1954). The degree to which colors (hues) are associated with mood-tones. *Journal of Applied Psychology, 38,* 432–435.

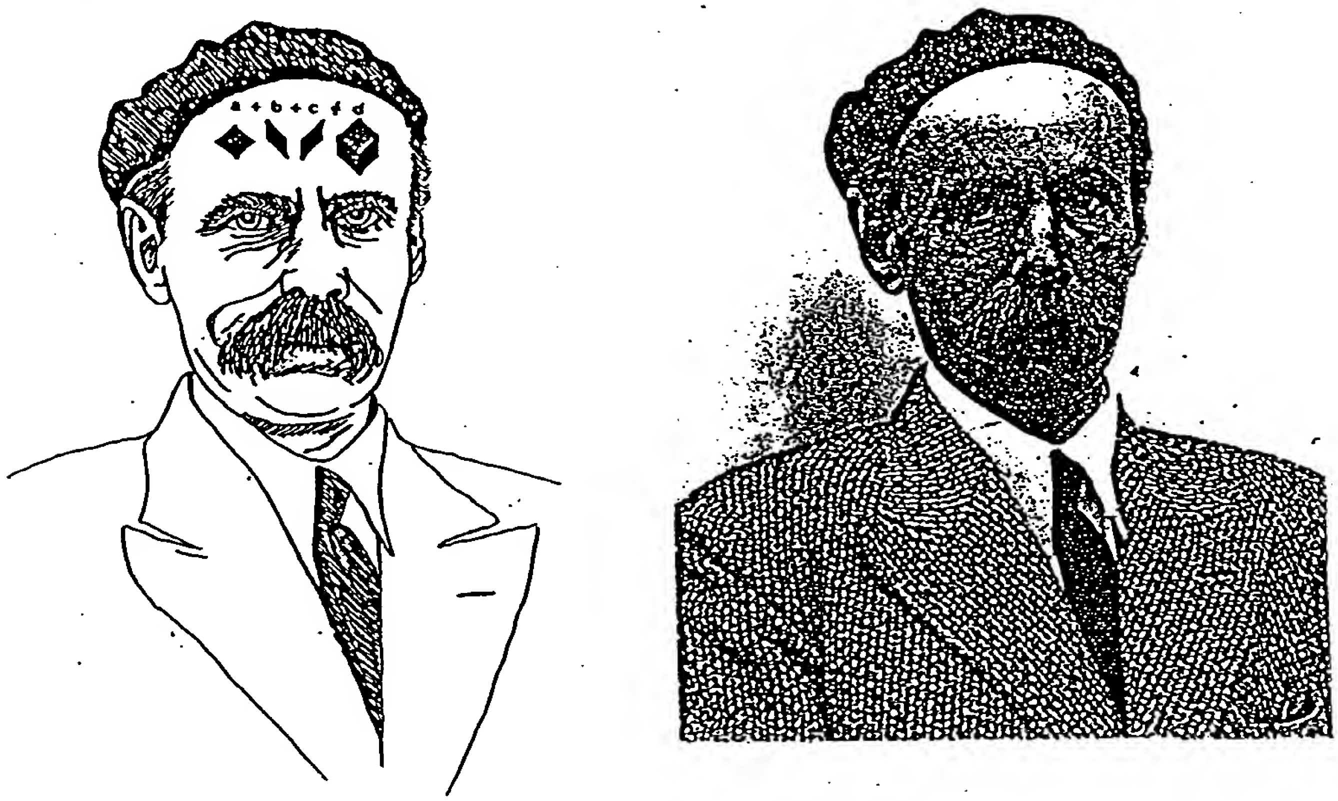
Whitfield, T. W. A., & Wiltshire, T. J. (1990). Color psychology: A critical review. *Genetic, Social and General Psychology Monographs, 116,* 387–405.

Wilson, G. D. (1966). Arousal properties of red versus green. *Perceptual and Motor Skills, 23,* 942–949.

Wright, B., & Rainwater, L. (1962). The meaning of color. *Journal of General Psychology, 67,* 89–99.

Received April 8, 1994
Revision received June 27, 1994
Accepted July 5, 1994

Figure 1-5
Max Wertheimer



Max Wertheimer was the founder of Gestalt psychology. His guiding principle was that mental content and behavior are different from the sum of their parts.

Gestalt Psychology

Gestalt psychology was a different kind of reaction to structuralism. The Gestalt movement began in Germany in the early part of the twentieth century, about the same time as behaviorism began to dominate American psychology. Gestalt psychology is a broad, research-oriented point of view toward behavior. It is not to be confused with a recent innovation in psychotherapy called Gestalt therapy (see Chapter 12). The German word *Gestalt* has no exact English translation. Roughly speaking, it means form or organized whole, reflecting the emphasis of this school on organizational processes in behavior. Whereas the focal problem of behaviorism was learning, Gestalt psychologists chose primarily to work with perceptual problems and sought to prove Wundt wrong in the very area that Wundt himself chose to emphasize. As a result, Gestal theory is often identified as a theory of per ception—although its principles are logicall applicable to a broad range of psychologica issues.

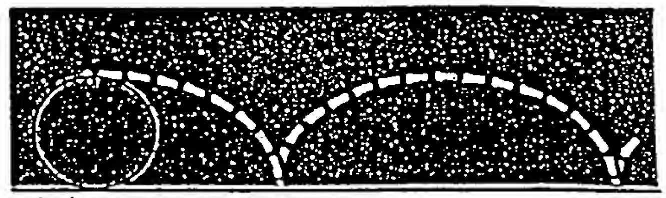
Behaviorists, like the structuralists, accepte the basic scientific idea that complex phenomen had to be analyzed into their simpler parts be fore they could be understood. The main pro ponents of Gestalt psychology, Wolfgang Köhle (1887–1967), Kurt Koffka (1886–1941), an Max Wertheimer (1880–1943), opposed th structuralists' efforts to reduce experience to small set of fundamental component part They seized on other ideas from physical sc ence, particularly the notions of field theory i physics, arguing that the whole of a phenon enon is different from the sum of its parts (s Figure 1–5). For example, from a series of st

pictures, you perceive continuity of action in a movie. There is movement even in the neon lights on a theater marquee. Both of these effects are based on the phenomenon of *apparent movement*, identified by early Gestalt psychologists. Figure 1–6 shows another example of how perception of a whole can differ from perceptions of its parts.

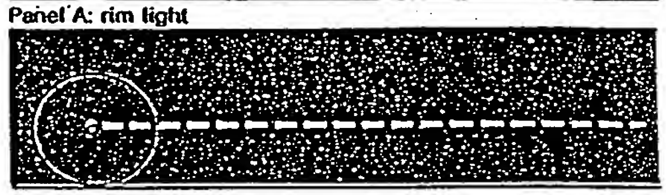
Gestalt theory can be applied to nearly all important forms of behavior. Köhler, for example, argued that learning and problem solving, like perception, are largely a function of organizational processes. How to behave in a particular situation may elude subjects until they see the various components of the task in their appropriate relationship. The situation is a problem primarily because the correct or necessary relationship among the elements is not easily seen. The subject's behavior may take the form of overt trial and error or covert "thought." But the subject must take a variety of perspectives on the situation until the correct one emerges. When it does emerge, the subject experiences a "moment of insight." Finally the problem is solved and, in a flash, the subject knows what to do. Notice the persistent use of terms related to perception, such as "seeing," "perspective," and "experience," in the foregoing description. This is a consistent theme within Gestalt explanations of behavior. Note also the implication that learning and problem solving are "all-or-none," insightful processes. This is another major principle that distinguishes Gestalt psychology from other theoretical attempts to deal with learning.

From many examples like those given above, the Gestalt school argued against the utility of describing integrated human action by a mere analysis of component parts. They were concerned with the completeness, the continuity, and the meaningfulness of behavior as a whole.

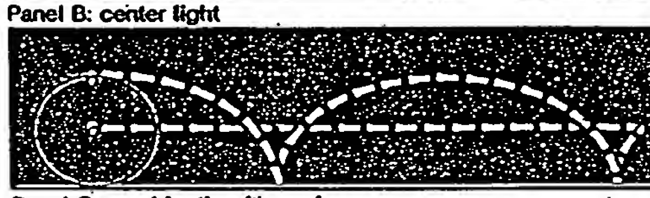
Figure 1–6
The Gestalt approach to perception



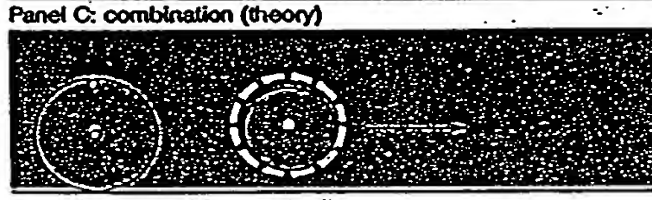
Panel A: rim light



Panel B: center light



Panel C: combination (theory)



Panel D: what subjects actually see

Here is an interesting perceptual effect that demonstrates one of the basic Gestalt principles of perception. It suggests that we do not perceive an event merely by adding up the perceptions that we have of the separate parts. A wheel is rolled from left to right across a table in a dark room. In the top panel, a light is attached to the rim of the wheel and the dashed line indicates what subjects perceive. The second panel shows our perception of a light attached at the center of the wheel. Panel C indicates what the geometric sum of the motions of the rim light and center light should look like. Panel D is what subjects *actually* perceive.

Psychoanalysis

Psychoanalysis, the theoretical point of view identified with Sigmund Freud (1858–1939), was less a reaction to structuralism than an effort to apply science and medicine to the study and treatment of abnormal behavior. (Several portraits of Freud appear on page 353 in Chapter 9.) Psychoanalysis has been called the third great intellectual blow to human pride. First, we human beings found that we are not at the center of the universe; then, we discovered that we are descended from apes; and, finally, Freud argued that we are basically controlled by impulses, many of which are buried in the unconscious, below the level of awareness. The view that human beings are rational and in conscious control of their behavior was weakened when Freud described the behavioral impact of early

EXHIBIT B - DECLARATIONS

1. Declaration of Inventor Noel Lee (Monster Cable), under 37 C.F.R. § 1.131 (3 pages + exhibit).

2. Declaration of Inventor Noel Lee (Monster Cable), under 37 C.F.R. § 1.132 (2 pages + exhibit).

3. Declaration of Retailer Karen Johnson (Good Guys), under 37 C.F.R. § 1.131 (2 pages + exhibit).

4. Declaration of Expert Witness Dr. Albert Mehrabian, under 37 C.F.R. § 1.132 (7 pages).